Description of the Academic Program

DEPARTMENT OF CIVIL ENGINEERING AT THE COLLEGE OF ENGINEERING AT UNIVERSITY OF MISAN FOR THE YEAR OF 2024\2025

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Description of the academic program

This academic program description provides a summary of the most important characteristics of the program and the learning outcomes that the student is expected to achieve, demonstrating whether he or she has made the most of the opportunities available. It is accompanied by a description of each course within the program.

1. Educational institution: University of Maysan

2. Scientific Department/Center: Department of Civil Engineering

3. Name of the academic or professional program: Civil Engineering

4. Name of final degree: Bachelor of Civil Engineering

5. Academic system:

quarterly

6. Accredited accreditation program: ABET

7. Other external influences: field and scientific visits

8. Date the description was prepared: January 2025

9. Objectives of the academic program:

1. Preparing and qualifying specialized engineers to meet the requirements of the labor market in the private and public sectors in civil engineering through diversification in learning and teaching methods and training students to apply the acquired knowledge and skills to solve real-life problems.

2. Providing distinguished academic programs in the field of civil engineering, both theoretical and practical, so that they 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. Prepare a stimulating environment for faculty members to develop their knowledge and educational and research skills.

5. Building and developing partnerships with the governmental and private sectors and society with all its various institutions.

10. Required program outcomes and teaching, learning and evaluation methods

A- Cognitive objectives

A1- The ability to apply knowledge in mathematics, science, and engineering.

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

A3- The ability to use modern engineering techniques, skills, and tools necessary to practice engineering.

A4- The ability to understand the applied codes of the profession and professional specifications.

B - The program's skill objectives.

B1 - The ability to supervise or implement various civil engineering works.

B2 - The ability to think about solving problems that arise during the implementation of work.

B3 - The ability to write scientific reports and read engineering diagrams.

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

Teaching and learning methods

1. Explanation and clarification through lectures.

2. How to display scientific materials using display devices: data shows, smart boards, plasma screens.

3. Self-learning through homework and mini-projects within lectures.

4. Laboratories.

5. Graduation projects.

6. Scientific visits.

7. Seminars held in the department.

8. Summer training.

Evaluation methods

1. Quizzes (QUIZ).

2. Homework.

3. Mid-term and final exams for theoretical and practical subjects.

4. Small projects within the lesson.

5. Interaction within the lecture.

6. Reports.

C- Emotional and value goals.

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

C2- Response: Monitoring the extent of the student's interaction with the material displayed on the screen.

C3- Interest: Following up on the interest of the student who interacted most with the material presented.

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

C5- Forming valuable behavior: meaning that the student reaches the top of the emotional ladder and 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 and field visits to follow up on designed projects in civil engineering.

• Engineering workshops.

• Experiential education.

• Applied education (laboratories).

Evaluation methods

• Commitment to the specified deadline for submitting the assignments and research required of the student.

• Active participation in the classroom is evidence of the student's commitment and responsibility.

• Semester and final tests express commitment and cognitive and skill achievement.

D - Transferable general and qualifying skills (other skills related to employability and personal development).

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

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

D3- Developing the student's ability to deal with multiple media.

D4- Developing the student's ability to dialogue and discuss.

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.

• Stirring the student's motivation towards answering and studying more.

• Working in multiple groups in workshops.

• Working with other state institutions within the summer training program.

• Organizing field visits to the work field.

Evaluation methods

• Follow up and discuss graduation projects.

• Follow up on students' performance in engineering workshops.

• Reports of completion of the summer training program.

11. Planning for personal development

• Providing the student with self-learning skills through the nature of vocabulary, study curricula, and approved teaching methods.

• Encouraging students to work as teams within practical projects that reflect the life reality of society and its problems.

• Encouraging students to enter and participate in competitions, seminars and conferences, which develop their research ability and self-confidence in self-learning.

12. Admission standard (setting regulations related to admission to the college or institute)

The Department of Civil Engineering is subject to the work mechanism of the Ministry of Higher Education and Scientific Research - the Central Admissions Department, where graduates of preparatory studies (scientific branch) are nominated for admission to the department based on their graduation rates. In addition, students are accepted in the morning class.

For parallel as well as evening study. Likewise, some students from the top ten graduates of technical institutes, others from the top five percent of professional studies, and some distinguished employees from state ministries are accepted.

13. The most important sources of information about the program

1. 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).

Curriculum skills chart

Please check the boxes corresponding to the individual learning outcomes from the program subject to evaluation

Learning outcomes required from the programmed

Year/level Course code Course name Basic

Or optional Cognitive objectives Program-specific skill objectives Affective and value objectives Transferable general and qualifying skills (other skills related to employability and personal development)

A1 A2 A3 A4 B1 B2 B3 B4 C1 C2 C3 C4 C5 D1 D2 D3 D4

The first stage, mathematics 1, basic × × × × × × × × × × × × × × ×

The first stage, engineering mechanics - basic statistics × × × × × × × × × × × × × ×

The first stage, engineering drawing 1, basic × × × × × × × × × × × × × × ×

The first stage, basic physics × × × × × × × × × × × × × × ×

The first stage, Arabic Language × × × × × × × × × × × × × × × ×

The first stage: basic English language × × × × × × × × × × × × × ×

The first stage, mathematics 2, basic × × × × × × × × × × × × × × ×

The first stage, engineering mechanics - Core × × × × × × × × × × × × × ×

The first stage, basic chemistry × × × × × × × × × × × × × ×

The first stage, engineering drawing 2, basic × × × × × × × × × × × × × × ×

The first stage: basic building materials × × × × × × × × × × × × × × × x

The first stage, basic computer principles × × × × × × × × × × × × ×

The first stage: democracy and human rights

Basic × × × × × × × × × × × × × ×

The second stage, applied mathematics 1, basic × × × × × × × × × × × x

The second stage, Mechanics of Materials - 1, Basic × × × × × × × × × × × × × × ×

The second stage, fluid mechanics 1, basic × × × × × × × × × × × × × × ×

The second stage, engineering space I, basic × × × × × × × × × × × × × × ×

The second stage, concrete technology, 1, basic × × × × × × × × × × × × × ×

The second stage, basic computer programming × × × × × × × × × × × × × × x

The second stage: Crimes of Baath Regime , basic × × × × × × × × × × × × × × ×

The second stage, applied mathematics 2, basic × × × × × × × × × × × ×

The second stage, Mechanics of Materials - 2 Basic × × × × × × × × × × × × × × ×

The second stage, fluid mechanics II, basic × × × × × × × × × × × × × × ×

The second stage, engineering surveying II, basic × × × × × × × × × × × × × × ×

The second stage, concrete technology 2, basic × × × × × × × × × × × × ×

The second stage, basic engineering statistics × × × × × × × × × × × × × × ×

The second stage, basic building construction × × × × × × × × × × × × × × ×

The third stage: basic engineering analyzes × × × × × × × × × × × × × × ×

The third stage, Theory of Constructions - 1, Basic × × × × × × × × × × × × × × ×

The third stage, soil mechanics I, basic × × × × × × × × × × × × × × ×

The third stage, reinforced concrete designs, 1 basic × × ×× × × × × × × × × × × ×

The third stage, basic irrigation engineering × × × × × × × × × × × × × × ×

The third stage, engineering management, basic × × × × × × × × × × × × × ×

The third stage, basic traffic engineering × × × × × × × × × × × × × × ×

The third stage, basic computer applications × × × × × × × × × × × × × × ×

The third stage, basic numerical analysis × × × × × × × × × × × × × × ×

The third stage, Theory of Constructions - 2, Basic × × × × × × × × × × × × × × ×

The third stage, soil mechanics II, basic × × × × × × × × × × × × × × × ×

The third stage, reinforced concrete designs, II, basic × × × × × × × × × × × × × ×

The third stage: Basic puncture geometry × × × × × × × × × × × × × × ×

The third stage, basic engineering economics × × × × × × × × × × × × × ×

The third stage, basic transportation engineering × × × × × × × × × × × × ×

The third stage: Computer applications - 2 basic × × × × × × × × × ×

The fourth stage, basic concrete designs × × × × × × × × × × × × × × × ×

The fourth stage, foundation engineering - 1, basic × × × × × × × × × × × × × × ×

The fourth stage, designs of steel structures - 1, basic × × × × × × × × × × × × × × ×

The fourth stage, basic hydraulic facilities × × × × × × × × × ×

The fourth stage, basic road engineering × × × × × × × × × × × × × × ×

The fourth stage, water supply engineering, basic × × × × × × × × × × × × × ×

The fourth stage: basic construction methods × × × × × × × × × × × × × × ×

The fourth stage, foundation engineering - 2, basic × × × × × × × × × × × × × × × ×

The fourth stage, designs of steel structures - 2 basic × × × × × × × × × × × × × ×

The fourth stage, basic engineering hydrology × × × × × × × × × × × × × × ×

The fourth stage: Design and analysis of basic tiling layers × × × × × × × × × × × × × × ×

The fourth stage, basic sanitary engineering × × × × × × × × × × × × ×

The fourth stage: estimation and geometric specifications, basic × × × × × × × × × × × × × × ×

The fourth stage: basic professional ethics × × × × × × × × × × × × ×

Course description form

Course description

The model description provides a brief description of the main features of the course and the academic outcomes that the model student is expected to achieve if he takes advantage of the learning opportunities available for the course. Compare with the program description.

1. Educational institution: University of Maysan

2. Scientific Department/Center: Department of Civil Engineering

3. Course name/code Mathematics 1

4. Available forms of attendance: physical or electronic

5. Semester/year, first semester/first stage

6. The total number of study hours is 60 hours

7. The date this description was prepared is January 2025

8. Course objectives

The course aims to present basic methods in calculus and analytical geometry as an introduction to use in some engineering applications of differentiation and solving simple differential equations.

9. Course outcomes and teaching, learning and evaluation methods

A- Cognitive objectives

A1- Study of Cartesian axes and the basics of analytical geometry.

A2- Learn a group of ways to draw functions using different techniques.

A3- Using the concept of purpose, approach, and approximation in consolidating and understanding the concept of mathematical differentiation.

A4- Using the concept of purpose to explain the concept of differentiation and derivatives.

B - The skills objectives of the course.

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

B2 - Using basic knowledge to research new technologies.

B3 - Deriving and evaluating the information necessary to apply engineering analysis methods to unfamiliar problems.

Teaching and learning methods

• Scientific and research skills are developed through teaching and learning activities. Analytical and problem-solving skills are developed further by MSA Group Questions are prepared by lecturers through small study groups, and all submitted work is evaluated and responded to.

Evaluation methods

• Interaction within the lecture.

• Homework and reports.

• Short tests (Quizzes).

• Semester and final exams.

C- Emotional and value goals.

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

C2- Response: Monitoring the extent of the student's interaction with the material displayed on the screen.

C3- Interest: Following up on the interest of the student who interacted most with the presented material, by increasing this interaction by requesting other programs and applications to display it.

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

C5- Forming valuable behavior: meaning that the student reaches the top of the emotional ladder and has a stable level in the lesson and does not become lazy or fidgety.

Teaching and learning methods

• The usual theoretical presentation method using a whiteboard and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• The theoretical presentation method using the (data show) device and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

Evaluation methods

• Direct questions (how and why) of the topic during the theoretical lecture.

• Sudden exams during the theoretical lecture.

• Quarterly exams for the theoretical aspect.

• Final exams for the theoretical aspect.

D - Transferable general and qualifying skills (other skills related to employability and personal development).

D1- Developing the student’s ability to perform assignments and submit them on time.

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

D3- Developing the student’s ability to dialogue and discuss.

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

10. Course structure

Week Hours Required learning outcomes Name of unit/or subject Teaching method Evaluation method

The first 4: Introduction to calculus numbers, a theoretical lecture, and a written exam

The second 4 Review Definition of functions, theoretical lecture, written exam

Third: 4 Function basics Drawing of functions, theoretical lecture, written exam

Fourth 4 Applications to Drawing of functions Asymptotes symmetry and infinity approaches A theoretical lecture A written exam

Fifth 4 Introduction to Analytic geometry Trigonometric functions A theoretical lecture and a written exam

Sixth: 4 Limits Approaches of numbers and Hospital's rule, theoretical lecture, written exam

Seventh 4 Introduction to Derivatives Implicit differentiations A theoretical lecture and a written exam

Eighth 4 Derivative applications 1 Sketch the functions Theoretical lecture Written exam

Ninth 4 Derivative applications 2 Mean value theory and some applications A theoretical lecture and a written exam

10th 4

Transcendental Functions 1

Exponential and Logarithmic Functions, theoretical lecture, written exam

Eleventh 4

Transcendental Functions 2

Hyperbolic functions, theoretical lecture, written exam

Twelfth 4 Transcendental Functions 3

DERIVATIVES OF EXP and LOG FUNCTIONS Theoretical lecture Written exam

Thirteenth 4 Transcendental Functions 4

Inverse trigonometric functions, theoretical lecture, written exam

Fourteenth 4 Analytic geometry 1 Conics theoretical lecture written exam

Fifteenth 4 Analytic geometry 2 Drawing the Conics, theoretical lecture, written exam

11. Infrastructure

1- Required textbooks Calculus, Thomas, Pearson Education 2005.

2- Main references (sources): Any other Calculus and analytic geometry textbook.

B - Electronic references, Internet sites, and reliable electronic sites.

Library locations in some international universities.

12. Course development plan

There is no intention to develop the course currently, because the materials adopted by this course are considered a foundation and a necessary introduction to the various stages and for more than one lesson. The development of the curriculum depends primarily on developing the curricula for the subsequent stages of some engineering academic subjects.

Course description form

Course description

The model description provides a brief description of the main features of the course and the academic outcomes that the model student is expected to achieve if he takes advantage of the learning opportunities available for the course. Compare with the program description.

1. The educational institution, University of Maysan

2. Scientific Department/Center, Civil Engineering Department

3. Name/code of the course Engineering Mechanics - STAT

4. Available forms of attendance: physical or electronic

5. Semester/Year First Semester - First Year

6. The total number of study hours is 75 hours

7. The date this description was prepared is January 2025

8. Course objectives

The course aims to present the basic methods in analyzing definite structures statically as an introduction to the analysis of indeterminate structures and structural design decisions.

9. Course outcomes and teaching, learning and evaluation methods

A- Cognitive objectives

A1- Newton's laws of motion and retrieval of trigonometric laws are determined and applied to adding and decomposing vector quantities.

A2- Determine the moment of force and calculate its value around a specific axis. Determine the moment of the couple, describe the concept of dry friction, and analyze the equilibrium of solid bodies subjected to this force.

A3 - Construct “free body diagrams” for real-world problems and apply Newton’s laws of motion and vector processes to evaluate the equilibrium of particles and objects M and application of particle-body equilibrium principles to analyze forces in plane truss members.

A4- Discuss the concepts of `center of gravity' and `centroid' and calculate their location for irregularly shaped objects and apply the concepts used to determine center of gravity and centroids to find the result of generally distributed loading. Use the methods learned for balancing bodies and the result of generally distributed loading to calculate internal forces in beams. Generalize the procedure to generate bending moments and shear force (internal forces) diagrams and use this information in engineering design.

B - The skills objectives of the course.

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

B2 - Using basic knowledge to research new technologies.

B3 - Deriving and evaluating the information necessary to apply engineering analysis methods to unfamiliar problems.

Teaching and learning methods

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

Evaluation methods

• Interaction within the lecture.

• Homework and reports.

• Short tests (Quizzes).

• Semester and final exams.

C- Emotional and value goals.

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

C2- Response: Monitoring the extent of the student's interaction with the material displayed on the screen.

C3- Interest: Following up on the interest of the student who interacted most with the presented material, by increasing this interaction by requesting other programs and applications to display it.

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

C5- Forming valuable behavior: meaning that the student reaches the top of the emotional ladder and has a stable level in the lesson and does not become lazy or fidgety.

Teaching and learning methods

• The usual theoretical presentation method using a whiteboard and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• The theoretical presentation method using the (data show) device and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• Laboratory presentation method using special devices to measure different properties of the material under experiment.

Evaluation methods

• Direct questions (how and why) of the topic during the theoretical and practical lecture.

• Sudden exams during the theoretical and practical lecture.

• Quarterly exams for the theoretical and practical aspects.

• Final exams for the theoretical and practical aspects.

D - Transferable general and qualifying skills (other skills related to employability and personal development).

D1- Developing the student’s ability to perform assignments and submit them on time.

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

D3- Developing the student's ability to dialogue and discuss.

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

11. Course structure

Week Hours Required learning outcomes Name of unit/or subject Teaching method Evaluation method

The first 5 Introduction principles of statics, theoretical lecture, written exam

The second 5 Force analysis Force analysis theoretical lecture written exam

Third 5 Force analysis Force analysis theoretical lecture written exam

Fourth 5 Force analysis Force analysis theoretical lecture written exam

Fifth 5 Equilibrium theoretical lecture written exam

Sixth 5 Equilibrium theoretical lecture written exam

Seventh 5 Equilibrium theoretical lecture written exam

Eighth 5 friction theoretical lecture written exam

Ninth 5 friction theoretical lecture written exam

Tenth 5 truss theoretical lecture written exam

Eleventh 5 truss theoretical lecture written exam

Twelfth 5 centroid theoretical lecture written exam

Thirteenth 5 centroid theoretical lecture written exam

Fourteenth 5 Moment of inertia Energy Methods Theoretical Lecture Written exam

Fifteenth 5 Moment of inertia Energy Methods Theoretical Lecture Written exam

13. Infrastructure

1- Required textbooks 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- Main references (sources)

Recommended books and references (scientific journals, reports,) and reliable websites.

Library locations in some international universities.

B - Electronic references, Internet sites

14. Course development plan

Course description form

Course description

The course provides general information for using the tools and concepts of engineering drawing, teaching drawing lines, their types and uses, and drawing geometric shapes with the method of setting dimensions. The course contributes to reading engineering drawings and how to infer details and measurements of the work from the course using a paper diagram or using computer-aided engineering drawing programs.

1. The educational institution, University of Maysan

2. Scientific Department/Center, Civil Engineering Department

3. Name/code of the engineering drawing course 1

4. Available forms of attendance: physical or electronic

5. Semester/year First semester/first stage

6. The total number of study hours is 90 hours

7. The date this description was prepared is January 2025

8. Course objectives

It is noted that facilities, buildings, and construction projects have developed significantly in recent years, and accordingly the methods of presenting engineering ideas and plans have developed, and great reliance has been placed on modern technologies such as computers and engineering programs in presenting engineering plans. Therefore, this course aims to introduce the student to the methods and tools of paper engineering drawing, how to read plans, and ways to find dimensions or shapes not shown in the plan through some engineering processes and ideas related to engineering drawing. This course is also considered an important introduction to computer applications for 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. Course outcomes and teaching, learning and evaluation methods

A- Cognitive objectives

A1- Clarifying the basic concepts of engineering drawing by defining the drawing tools, how to use them, and how to deduce dimensions and civil shapes from drawings and plans.

A2- Acquiring skills in dealing with site engineering problems.

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

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

B - The skills objectives of the course.

B1 - The ability to draw sections and geometric shapes.

B2 - The 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, seminars.

• Exercises and activities in the lecture.

• Homework.

• Directing students to some websites to benefit and develop capabilities.

• Conducting discussion circles to explain and analyze a specific issue and find solutions to it.

Evaluation methods

• Interaction within the lecture.

• Homework and reports.

• Short tests (Quizzes).

• Semester and final exams.

C- Emotional and value goals.

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

C2- Response: Monitoring the extent of the student's interaction with the material displayed on the screen.

C3- Interest: Following up on the interest of the student who interacted most with the presented material, by increasing this interaction by requesting other programs and applications to display it.

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

C5- Forming valuable behavior: meaning that the student reaches the top of the emotional ladder and has a stable level in the lesson and does not become lazy or fidgety.

Teaching and learning methods

• Multiple choice questions.

• Completion questions.

• Understanding scientific material and engineering principles.

• Apply knowledge in a simple way to interpret data, diagnose and solve problems

Evaluation methods

• Active participation in the classroom is evidence of the student's commitment and responsibility.

• Commitment to the specified deadline for submitting the assignments and research required of the student.

• Semester and final tests express commitment and cognitive and skill achievement.

D - Transferable general and qualifying skills (other skills related to employability and personal development).

D1- Developing the student's ability to perform assignments and submit them on time.

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

D3- Developing the student's ability to dialogue and discuss.

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

10. Course structure

Week Hours Required learning outcomes Name of unit/or subject Teaching method Evaluation method

The first 6 provides general information about using tools and the concept of engineering drawing

Practical classroom application

Second 6 Practical classroom application

Third 6 Practical classroom application

Fourth 6: Teaching drawing lines, their types and uses, practical classroom application

Fifth 6 Practical classroom application

Sixth 6 Engineering Operations Practical Class Application

Seventh 6 Practical classroom application

Eighth 6 Practical classroom application

Ninth 6 Setting dimensions Practical classroom application

Tenth 6 Practical applications Class application

Eleventh 6 Practical classroom application

Twelfth 6 Practical classroom application

Thirteenth 6 Drawing projections Practical classroom application

Fourteenth 6 Practical classroom application

Fifteenth 6 Practical classroom application

11. Infrastructure

1- The required textbooks are engineering drawing, written by Abd al-Rasul al-Khafaf

Descriptive Geometry, written by Jassim Shehab

2- Main references (sources): Engineering drawing by French

Recommended books and references (scientific journals, reports,)

B - Electronic references, Internet sites, and reliable electronic sites.

Library locations in some international universities.

12. Course development plan

Course description form

Course description

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. The educational institution, University of Maysan

2. Scientific Department/Department Center civil engineering

3. Course name/code: Physics

4. Available forms of attendance: in person or online

5. Semester/year, first semester/first stage

6. The total number of study hours is 30 hours

7. The date this description was prepared is January 2025

8. Course objectives

1. The educational institution, University of Maysan

2. Scientific Department/Center, Civil Engineering Department

3. Course name/code: Physics

4. Available forms of attendance: in person or online

5. Semester/year, first semester/first stage

6. The total number of study hours is 30 hours

7. The date this description was prepared is January 2025

8. Course objectives

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 characterized by a high degree of generality and are derived from a huge 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 laws of physics are most important 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 facilities, and others.

9. Course outcomes and teaching, learning and evaluation methods

A- Cognitive objectives

A1- Clarifying the basic concepts of physics.

A2- Acquiring skills in dealing with the laws of physics and understanding them in a simple way.

A3- Acquiring basic skills such 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. Derivation of other physical quantities such as force, energy, and momentum

Of these seven basic dimensions.

B - The skills objectives of the course.

B1 - The ability to know and understand physics

B2 - The ability to think about solving any problem.

B3 - Writing scientific reports.

B4 - The ability to gain experience in dealing with physical quantities.

Teaching and learning methods

• Readings, self-learning, seminars.

• Exercises and activities in the lecture.

• Homework.

• Directing students to some websites to benefit and develop capabilities.

• Conducting discussion circles to explain and analyze a specific issue and find solutions to it.

Evaluation methods

• Interaction within the lecture.

• Homework and reports.

• Short tests (Quizzes).

• Semester and final exams.

C- Emotional and value goals.

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

C2- Response: Monitoring the extent of the student's interaction with the material displayed on the screen.

C3- Interest: Following up on the interest of the student who interacted most with the material presented, by increasing this interaction by requesting other programs and applications to display it.

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

C5- Forming valuable behavior: meaning that the student reaches the top of the emotional ladder and has a stable level in the lesson and does not become lazy or fidgety.

Teaching and learning methods

• Multiple choice questions.

• Completion questions.

• Understanding scientific material and engineering principles.

• Apply knowledge in a simple way to interpret data, diagnose and solve problems

Evaluation methods

• Active participation in the classroom is evidence of the student's commitment and responsibility.

• Commitment to the specified deadline for submitting the assignments and research required of the student.

• Semester and final tests express commitment and cognitive and skill achievement.

D - Transferable general and qualifying skills (other skills related to employability and personal development).

D1- Developing the student's ability to perform assignments and submit them on time.

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

D3- Developing the student's ability to dialogue and discuss.

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

10. Course structure

Week Hours Required learning outcomes Name of unit/or subject Teaching method Evaluation method

The first 2 are a theoretical introduction, questions and discussion

Second 2 Physics tools the importance of physics

Theory questions, discussion and coz

Third 2: Uniform linear motion, theoretical questions and discussion

The fourth: 2 theoretical questions, discussion, and cos

Fifth 2 Projectile movement, theoretical questions and discussion

Sixth: 2 Newton's laws of motion, theoretical questions and discussion

Seventh: 2 theoretical questions and discussion

Eighth 2: Mass and its relationship to weight, theoretical questions, discussion, and discussion

Ninth 2: Friction and frictional forces, theoretical questions and discussion

Tenth 2 Movement in a theoretical circle Questions and discussion

Eleventh 2: Equations of angular motion, theoretical questions and discussion

Twelfth 2 Centripetal wheel, theoretical questions and discussion

Thirteenth 2 Newton's law of gravitation, theoretical questions, discussion, and cos

Fourteenth 2 Theoretical questions and discussion

Fifteenth 2 Orbital motion, theoretical questions and discussion

11. Infrastructure

1- Required prescribed books

2- Main references (sources): Fundamentals of Physics

Recommended books and references (scientific journals)., Reports,) Discreet websites.

Library locations in some international universities.

B - Electronic references, Internet sites

12. Course development plan

Course description form

Course description

The model description provides a brief description of the main features of the course and the academic outcomes that the model student is expected to achieve if he takes advantage of the learning opportunities available for the course. Compare with the program description.

1. The educational institution, University of Maysan

2. Scientific Department/Center, Civil Engineering Department

3. Name/code of the engineering geology course

4. Available forms of attendance: physical or electronic

5. Semester/Year First Year/First Stage

6. The total number of study hours is 60 hours

7. The date this description was prepared is January 2025

8. Course objectives

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, natural properties of soil, and the geology of subsurface water as an introduction to studying the geology of tunnel sites, dams, and reservoirs, and the use of geological maps and geological surveys.

9. Course outcomes and teaching, learning and evaluation methods

A- Cognitive objectives

A1- Introducing the concept of engineering geology and its importance in knowing the origin, history and formation of the sphere

The earth and the forces affecting its rocks.

A2- Identifying environmental problems resulting from geological phenomena, their causes, and ways to reduce their effects.

A3- Description of engineering methods for analyzing and designing systems that help solve geological problems of foundations.

A4- Clarifying groundwater sources, their relationship to surface water, and how to avoid their risks during implementation

Engineering works, explaining methods for drawing topographic sections, knowing the thickness of the Earth’s surface layers, and determining the investigation methods required for the locations of important buildings and facilities and the type of geological phenomena.

Influential.

B - The skills objectives of the course.

B1 - Analyzing natural phenomena that are important in understanding the true components of the Earth

B2 - Choosing engineering decisions to know the movement of ground water and interpret the factors affecting it

B3 - Design illustrative geological maps of the Earth’s surface layers and their uses in engineering

Civilian

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

Facilities

Teaching and learning methods

• Theoretical lectures, practical lectures, small discussion groups, showing auxiliary scientific films, writing reports.

Evaluation methods

• Interaction within the lecture.

• Homework and reports.

• Short tests (Quizzes).

• Semester and final exams.

C- Emotional and value goals.

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

C2- Response: Monitoring the extent of the student's interaction with the material displayed on the screen.

C3- Interest: Following up on the interest of the student who interacted most with the presented material, by increasing this interaction by requesting other programs and applications to display it.

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

C5- Forming valuable behavior: meaning that the student reaches the top of the emotional ladder and has a stable level in the lesson and does not become lazy or fidgety.

Teaching and learning methods

• The usual theoretical presentation method using a whiteboard and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• The theoretical presentation method using the (data show) device and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• Laboratory presentation method using special devices to measure different properties of the material under experiment.

Evaluation methods

• Direct questions (how and why) of the topic during the theoretical and practical lecture.

• Sudden exams during the theoretical and practical lecture.

• Quarterly exams for the theoretical and practical aspects.

• Final exams for the theoretical and practical aspects.

D - Transferable general and qualifying skills (other skills related to employability and personal development).

D1- Developing the student's ability to perform assignments and submit them on time.

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

D3- Developing the student's ability to dialogue and discuss.

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

10. Course structure

Week Hours Required learning outcomes Name of unit/or subject Teaching method Evaluation method

The first 2

2 Introduction to earth science

Geology and engineering geology theoretical

My written exam

Second 2

2 Earth structure, geology and engineering geology, theoretical

My written exam

Third 2

2 metal sets

Physical properties of minerals

theoretical minerals

My written exam

Fourth 2

2 types of rocks

Physical and geometric properties of rocks Theoretical rocks

My written exam

V 2

2 The geochemical cycle of rocks

Theoretical rock geological structures

My written exam

Sixth 2

2 Earthquakes and volcanoes

My theory rocks

My written exam

Seventh 2

2 Geological origin and soil properties

Soil geology and rivers theory

My written exam

Eighth 2

2 Transport and sedimentation in rivers

Soil geology and rivers theory

My written exam

Ninth 2

2 The origin and sources of subsurface water Geology of subsurface water Theoretical

My written exam

10th 2

2 movement Subsurface water

Artesian wells, subsurface water geology, theory

My written exam

Eleventh 2

2 Topographic maps

Theoretical geological maps

My written exam

Twelfth 2

2 contour lines

Theoretical geological maps

My written exam

Thirteenth 2

2 Topographic sections

Vertical section theoretical geological maps

My written exam

Fourteenth 2

2 Geological and geotechnical investigations for engineering building sites Geological and geotechnical investigations for engineering building sites Theoretical

My written exam

XV 2

2 Engineering geology and foundation problems Geological and geotechnical investigations for theoretical engineering building sites

My written exam

11. Infrastructure

1- The required textbooks are the Engineering Geology book by Dr. Abdul Majeed Al-Taie.

2- Main references (sources): The book on engineering geology and geological maps by Dr. Ibrahim Ali Abide / Faculty of Engineering - Alexandria University

A - Recommended books and references (scientific journals, reports,) Library websites in some international universities.

B - Electronic references, Internet sites, and reliable electronic sites.

12. Course development plan

Course description form

Course description

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

1. The educational institution, University of Maysan

2. Scientific Department/Center, Civil Engineering Department

3. Name/code of the English language course

4. Available forms of attendance: physical or electronic

5. Semester/year, first semester/first stage

6. The total number of study hours is 30 hours

7. The date this description was prepared is January 2025

8. Course objectives

Developing students' skills in speaking English in terms of sentence formulation and pronunciation

9. Course outcomes and teaching, learning and evaluation methods

A- Cognitive objectives

A1- Clarifying the basic concepts of the English language by defining the tools for grammar, sentence formulation, texts, and pronunciation.

A2- Acquiring skills in speaking and writing research and reports.

B - The skills objectives of the course.

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, seminars.

• Exercises and activities in the lecture.

• Homework.

• Directing students to some websites to benefit and develop capabilities.

• Conducting discussion circles to explain and analyze a specific issue and find solutions to it.

Evaluation methods

• Interaction within the lecture.

• Homework and reports.

• Short tests (Quizzes).

• Semester and final exams.

C- Emotional and value goals.

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

C2- Response: Monitoring the extent of the student's interaction with the material displayed on the screen.

C3- Interest: Following up on the interest of the student who interacted most with the presented material, by increasing this interaction by requesting other programs and applications to display it.

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

C5- Forming valuable behavior: meaning that the student reaches the top of the emotional ladder and has a stable level in the lesson and does not become lazy or fidgety.

Teaching and learning methods

• Multiple choice questions.

• Completion questions.

• Understanding scientific material and engineering principles.

• Apply knowledge in a simple way to interpret data, diagnose and solve problems

Evaluation methods

• Active participation in the classroom is evidence of the student's commitment and responsibility.

• Commitment to the specified deadline for submitting the assignments and research required of the student.

• Semester and final tests express commitment and cognitive and skill achievement.

D - Transferable general and qualifying skills (other skills related to employability and personal development).

D1- Developing the student's ability to perform assignments and submit them on time.

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

D3- Developing the student's ability to dialogue and discuss.

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

11. Course structure

Week Hours Required learning outcomes Name of unit/or subject Teaching method Evaluation method

The first 2 Sequence is theoretical questions and discussion

The second: 2 Contrast, theoretical questions, discussion, and cos

The third 2 Cause and consequence theoretical questions and discussion

Fourth 2: Reading, theoretical questions, discussion, and cos

V 2 Comparisons

Theoretical questions and discussion

Sixth: 2 theoretical questions and discussion

Seventh: 2 Reading, theoretical questions and discussion

Eighth 2 Nouns

Theory questions, discussion and coz

Ninth 2: Theoretical questions and discussion

Tenth: 2 Reading, theoretical questions and discussion

Eleventh 2 Pronouns

Theoretical questions and discussion

Twelfth 2 Theoretical questions and discussion

Thirteenth 2 The Passive Theoretical questions, discussion and advice

Fourteenth 2 Impersonal Passive Theoretical questions and discussion

Fifteenth 2 Reading, theoretical questions and discussion

11. Infrastructure

1- Textbooks required for learning the English language

2- Main references (sources) New Headway_ Beginner A1_Workbook

Recommended books and references (scientific journals, reports,)

B - Electronic references, Internet sites, and reliable electronic sites.

Library locations in some international universities.

12. Course development plan

Course description form

Course description

The model description provides a brief description of the main features of the course and the academic outcomes that the model student is expected to achieve if he takes advantage of the learning opportunities available for the course. Compare with the program description.

1. The educational institution, University of Maysan

2. Scientific Department/Center, Civil Engineering Department

3. Course name/code Mathematics 2

4. Available forms of attendance: physical or electronic

5. Semester/year, first semester/first stage

6. The total number of study hours is 60 hours

7. The date this description was prepared is January 2025

8. Course objectives

The course aims to present basic methods in calculus and analytical geometry as an introduction to use in some engineering applications of differentiation and solving simple differential equations.

9. Course outcomes and teaching, learning and evaluation methods

A- Cognitive objectives

A1- Learn the basic concepts of integration and its scientific basis.

A2- Learn a group of methods and techniques to integrate a large group of functions.

A3- Using integration to solve many physical and engineering problems.

A4- An introduction to linear algebra and solving equations related to engineering systems and an introduction to numerical analysis.

B - The skills objectives of the course.

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

B2 - Using basic knowledge to research new technologies.

B3 - Deriving and evaluating the information necessary to apply engineering analysis methods to unfamiliar problems.

Teaching and learning methods

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

Evaluation methods

• Interaction within the lecture.

• Homework and reports.

• Short tests (Quizzes).

• Semester and final exams.

C- Emotional and value goals.

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

C2- Response: Monitoring the extent of the student's interaction with the material displayed on the screen.

C3- Interest: Following up on the interest of the student who interacted most with the presented material, by increasing this interaction by requesting other programs and applications to display it.

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

C5- Forming valuable behavior: meaning that the student reaches the top of the emotional ladder and has a stable level in the lesson and does not become lazy or fidgety.

Teaching and learning methods

• The usual theoretical presentation method using a whiteboard and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• The theoretical presentation method using the (data show) device and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

Evaluation methods

• Direct questions (how and why) of the topic during the theoretical lecture.

• Sudden exams during the theoretical lecture.

• Quarterly exams for the theoretical aspect.

• Final exams for the theoretical aspect.

D - Transferable general and qualifying skills (other skills related to employability and personal development).

D1- Developing the student's ability to perform assignments and submit them on time.

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

D3- Developing the student's ability to dialogue and discuss.

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

10. Course structure

Week Hours Required learning outcomes Name of unit/or subject Teaching method Evaluation method

The first 4: Introduction to integration Definitions, theoretical lecture, written exam

The second: 4 Applications on Integration 1 Area under curves, theoretical lecture, written exam

Third 4 Applications on Integration 2 Area between curves, theoretical lecture, written exam

Fourth 4 Applications on Integration 3 Volumes by revolutions about axes A theoretical lecture and a written exam

Fifth 4 Applications on Integration 4 Surface areas and length of curves, theoretical lecture, written exam

Sixth 4 Integration of some complex Logarithmic function. Exponential and trigonometric functions, theoretical lecture, written exam

Seventh 4 Method of integration 1 Substitution methods A theoretical lecture and a written exam

Eighth 4 Method of integration 2 Some techniques for trigonometric functions A theoretical lecture and a written exam

Ninth 4 Method of integration 3 Integration by parts 1 theoretical lecture written exam

10th 4

Method of integration 4

Integration by parts 2, theoretical lecture, written exam

Eleventh 4 Method of integration 5

Partial fraction method, theoretical lecture, written exam

Twelfth 4 Method of integration 6

Trigonometric substitutions 1 theoretical lecture written exam

Thirteenth 4 Method of integration 7

Trigonometric substitutions 2 theoretical lecture written exam

Fourteenth 4 Matrices 1 Basics of matrices Theoretical lecture Written exam

the Fifteenth 4 Matrices 2 Solving algebraic linear systems A theoretical lecture and a written exam

11. Infrastructure

1- Required textbooks Calculus, Thomas, Pearson Education 2005.

2- Main references (sources): Any other Calculus and analytic geometry textbook.

B - Electronic references, Internet sites, and reliable electronic sites.

Library locations in some international universities.

12. Course development plan

There is no intention to develop the course currently, because the materials adopted by this course are considered a foundation and a necessary introduction to the various stages and for more than one lesson. The development of the curriculum depends primarily on developing the curricula for the subsequent stages of some engineering academic subjects.

Course description form

Course description

The study of the movement of particles on a linear path, a curved path, the movement of lines in a circular manner, and the movement of projectiles. It also includes a study of Newton's law of mass and acceleration, in addition to the study of work and energy, as well as the study of momentum.

1. The educational institution, University of Maysan

2. Scientific Department/Center, Civil Engineering Department

3. Name/code of the course Engineering Mechanics - Dynamics

4. Available forms of attendance: physical or electronic

5. Semester/year, second semester/first stage

6. Number of study hours (total) 60

7. The date this description was prepared is January 2025

8. Course objectives

The course aims to study the principles of motion and Newton's laws of motion as an introduction to the study of the science of movement of structures.

9. Course outcomes and teaching, learning and evaluation methods

A- Cognitive objectives

A1- Applying the principles of velocity and acceleration to the movement of particles in a linear, curved, and circular manner.

A2- Applying the principles of motion with constant acceleration to the motion of projectiles.

A3- Application of Newton’s law of mass and acceleration and its relationship to motion with constant acceleration.

A4- An introduction to the study of work, energy and momentum.

B - The skills objectives of the course.

B1 - Apply the principles of motion to study the movement of particles.

B2 - Using basic knowledge to research new technologies.

B3 - Study the principles of movement of structural parts.

Teaching and learning methods

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

Evaluation methods

• Interaction within the lecture.

• Homework and reports.

• Short tests (Quizzes).

• Semester and final exams.

C- Emotional and value goals.

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

C2- Response: Monitoring the extent of the student's interaction with the material displayed on the screen.

C3- Interest: Following up on the interest of the student who interacted most with the presented material, by increasing this interaction by requesting other programs and applications to display it.

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

C5- Forming valuable behavior: meaning that the student reaches the top of the emotional ladder and has a stable level in the lesson and does not become lazy or fidgety.

Teaching and learning methods

• The usual theoretical presentation method using a whiteboard and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• The theoretical presentation method using the (data show) device and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• Laboratory presentation method using special devices to measure different properties of the material under experiment.

Evaluation methods

• Direct questions (how and why) of the topic during the theoretical and practical lecture.

• Sudden exams during the theoretical and practical lecture.

• Quarterly exams for the theoretical and practical aspects.

• Final exams for the theoretical and practical aspects.

D - Transferable general and qualifying skills (other skills related to employability and personal development).

D1- Developing the student’s ability to perform assignments and submit them on time.

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

D3- Developing the student's ability to dialogue and discuss.

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

10. Course structure

Week Hours Required learning outcomes Name of unit/or subject Teaching method Evaluation method

The first 4: Introduction to Dynamic Introduction to Dynamic, theoretical lecture, written exam

Second 4 Rectilinear Kinematics: Continuous Motion Continuous Motion Theoretical Lecture Written exam

Third 4 Rectilinear Kinematics: Continuous Motion Continuous Motion Theoretical Lecture Written exam

Fourth 4 Rectilinear Kinematics: Continuous Motion Motion of Projectiles Theoretical lecture Written exam

Fifth 4 Rectilinear Kinematics: Continuous Motion Curvilinear Motion Theoretical lecture Written exam

Sixth 4 Coplanar Angular Motion of a Line Motion of a Line Theoretical lecture Written exam

Seventh 4 Coplanar Angular Motion of a Line Motion on circular path, theoretical lecture, written exam

Eighth 4

Kinetics of Rigid Body: Planar Kinetics Equation of Motion

Rectilinear Translation Theoretical lecture Written exam

Ninth 4

Kinetics of Rigid Body: Planar Kinetics Equation of Motion

Curvilinear Translation Theoretical lecture Written exam

10th 4

Work and Energy Work of a force, theoretical lecture and written exam

Al Hadi A Shar 4 Work and Energy Principle of Work and Energy, theoretical lecture, written exam

Twelfth 4 Work and Energy Principle of Work a n d Energy for a System of Particles Theoretical lecture Written exam

Thirteenth 4 Work and Energy Power and Efficiency, theoretical lecture, written exam

Fourteenth 4 Impulse and Momentum Principle of Linear Impulseand Momentum Theoretical lecture Written exam

Fifteenth 4 Impulse and Momentum Principle of Linear Impulse and Momentum for a System of Particles Theoretical lecture Written exam

11. Infrastructure

1- Required textbooks 1. Engineering Mechanics, Higdon

2. Engineering Mechanics: Dynamic, R.C. Hibbeler, Prentice Hall.

2- Main references (sources)

Recommended books and references (scientific journals, reports,) and reliable websites.

Library locations in some international universities.

B - Electronic references, Internet sites

12. Course development plan

Course description form

Course description

The model description provides a brief description of the main features of the course and the academic outcomes that the model student is expected to achieve if he takes advantage of the learning opportunities available for the course. Compare with the program description.

1. The educational institution, University of Maysan

2. Scientific Department/Center, Civil Engineering Department

3. Chemistry course name/code

4. Available forms of attendance: physical or electronic

5. Semester/year, second semester/first stage

6. The total number of study hours is 45 hours

7. The date this description was prepared is January 2025

8. Course objectives

The course aims to present the basic methods for interpreting the behavior of various types of materials in terms of their chemical compositions. Emphasis was placed on the application of chemical principles and their relationship to civil engineering.

9. Course outcomes and teaching, learning and evaluation methods

A- Cognitive objectives

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

A2- Study and knowledge of water, its chemical properties, the equations involved in its formation, and the water suitable for concrete mix.

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

B - The skills objectives of the course.

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

B2 - Using basic knowledge to research new chemical techniques.

B3 - Derivation and evaluation of the necessary equations for applying 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 are provided by lecturers through small study groups, and all submitted work is evaluated and responded to.

Evaluation methods

• Interaction within the lecture.

• Homework and reports.

• Short tests (Quizzes).

• Semester and final exams.

C- Emotional and value goals.

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

C2- Response: Monitoring the extent of the student's interaction with the material displayed on the screen.

C3- Interest: Following up on the interest of the student who interacted most with the presented material, by increasing this interaction by requesting other programs and applications to display it.

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

C5- Forming valuable behavior: meaning that the student reaches the top of the emotional ladder and has a stable level in the lesson and does not become lazy or fidgety.

Teaching and learning methods

• The usual theoretical presentation method using a whiteboard and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• The theoretical presentation method using the (data show) device and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• Laboratory presentation method using special devices to measure different properties of the material under experiment.

Evaluation methods

• Direct questions (how and why) of the topic during the theoretical and practical lecture.

• Sudden exams during the theoretical and practical lecture.

• Quarterly exams for the theoretical and practical aspects.

• Final exams for the theoretical and practical aspects.

D - Transferable general and qualifying skills (other skills related to employability and personal development).

D1- Developing the student’s ability to perform assignments and submit them on time.

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

D3- Developing the student’s ability to dialogue and discuss.

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

10. Course structure

Week Hours Required learning outcomes Name of unit/or subject Teaching method Evaluation method

The first 3, the first semester, cement (its composition and types), a theoretical lecture and a written exam

The second 3, the first semester, cement (its composition and types), a theoretical and practical lecture, a written exam

Third 3 Chapter One: Cement (its composition and types), theoretical and practical lecture, written exam

Fourth 3 Chapter One: Cement (its composition and types), theoretical and practical lecture, written exam

Fifth 3, Chapter One, Cement (its composition and types), theoretical and practical lecture, written exam

Sixth 3, Chapter One, Cement (composition and types), theoretical and practical lecture, written exam

Seventh 3 Chapter One Cement (composition and... Types: theoretical lecture and practical written exam

Eighth 3, Chapter Two, Lime and Gypsum, theoretical and practical lecture, written exam

Ninth 3, Chapter Two, Lime and Gypsum, theoretical and practical lecture, written exam

Tenth 3, Chapter Two, Lime and Gypsum, theoretical and practical lecture, written exam

Eleventh 3, Chapter Two, Lime and Gypsum, theoretical and practical lecture, written exam

Twelfth 3 Chapter Three: Water and its composition, theoretical and practical lecture, written exam

Thirteenth 3 Chapter Three: Water and its composition, theoretical and practical lecture, written exam

Fourteenth 3 Chapter Three: Water and its composition, theoretical and practical lecture, written exam

Fifteenth 3 Chapter Three: Water and its composition, theoretical and practical lecture, written exam

11. Infrastructure

1- Required prescribed books

2- Main references (sources)

Recommended books and references (scientific journals, reports,)

B - Electronic references, Internet sites

12. Course development plan

Expanding the study of the chemical composition of engineering materials included in the study of civil engineering and its sections of construction and water, and their chemical and engineering equations.

Course description form

Course description

The course provides general information for using the tools and concepts of engineering drawing, teaching drawing lines, their types and uses, and drawing geometric shapes with the method of setting dimensions. The course contributes to reading engineering drawings and how to infer details and measurements of the work from the course using a paper diagram or using computer-aided engineering drawing programs.

1. The educational institution, University of Maysan

2. Scientific Department/Center, Civil Engineering Department

3. Name/code of the engineering drawing course 2

4. Available forms of attendance: physical or electronic

5. Semester/year, second semester/first stage

6. The total number of study hours is 90 hours

7. The date this description was prepared is January 2025

8. Course objectives

It is noted that facilities, buildings, and construction projects have developed significantly in recent years, and accordingly the methods of presenting engineering ideas and plans have developed, and great reliance has been placed on modern technologies such as computers and engineering programs in presenting engineering plans. Therefore, this course aims to introduce the student to the methods and tools of paper engineering drawing, how to read plans, and ways to find dimensions or shapes not shown in the plan through some engineering processes and ideas related to engineering drawing. This course is also considered an important introduction to computer applications for 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. Course outcomes and teaching, learning and evaluation methods

A- Cognitive objectives

A1- Clarifying the basic concepts of engineering drawing by defining the drawing tools, how to use them, and how to deduce dimensions and civil shapes from drawings and plans.

A2- Acquiring skills in dealing with site engineering problems.

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

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

B - The skills objectives of the course.

B1 - The ability to draw sections and geometric shapes.

B2 - The 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, seminars.

• Exercises and activities in the lecture.

• Homework.

• Directing students to some websites to benefit and develop capabilities.

• Conducting discussion circles to explain and analyze a specific issue and find solutions to it.

Evaluation methods

• Interaction within the lecture.

• Homework and reports.

• Short tests (Quizzes).

• Semester and final exams.

C- Emotional and value goals.

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

C2- Response: Monitoring the extent of the student's interaction with the material displayed on the screen.

C3- Interest: Following up on the interest of the student who interacted most with the presented material, by increasing this interaction by requesting other programs and applications to display it.

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

C5- Forming valuable behavior: meaning that the student reaches the top of the emotional ladder and has a stable level in the lesson and does not become lazy or fidgety.

Teaching and learning methods

• Multiple choice questions.

• Completion questions.

• Understanding scientific material and engineering principles.

• Apply knowledge in a simple way to interpret data, diagnose and solve problems

Evaluation methods

• Active participation in the classroom is evidence of the student's commitment and responsibility.

• Commitment to the specified deadline for submitting the assignments and research required of the student.

• Semester and final tests express commitment and cognitive and skill achievement.

D - Transferable general and qualifying skills (other skills related to employability and personal development).

D1- Developing the student's ability to perform assignments and submit them on time.

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

D3- Developing the student's ability to dialogue and discuss.

D4- Developing the student's ability to deal with modern technology Especially the internet.

10. Course structure

Week Hours Required learning outcomes Name of unit/or subject Teaching method Evaluation method

The first 6 is the conclusion of the missing site

Practical classroom application

Second 6 Practical classroom application

Third 6 Practical classroom application

Fourth 6 Three-dimensional drawing Practical classroom application

Fifth 6 Practical classroom application

Sixth 6 Drawing cut-out objects Practical classroom application

Seventh 6 Practical classroom application

Eighth 6 Practical classroom application

Ninth: 6 Principles of Structural Drawing, Practical Class Application

Tenth 6 Practical classroom application

Eleventh 6 Practical classroom application

Twelfth 6 Practical classroom application

Thirteenth: 6 simplified principles of descriptive geometry. Practical classroom application

Fourteenth 6 Practical classroom application

Fifteenth 6 Practical classroom application

11. Infrastructure

1- The required textbooks are engineering drawing, written by Abd al-Rasul al-Khafaf

Descriptive Geometry, written by Jassim Shehab

2- Main references (sources): Engineering drawing by French

Recommended books and references (scientific journals, reports,...)

B - Electronic references, Internet sites, and reliable electronic sites.

Library locations in some international universities.

12. Course development plan

Course description form

Course description

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 be compatible with the conditions of their use in all required engineering works.

1. The educational institution, University of Maysan

2. Scientific Department/Center, Civil Engineering Department

3. Name/code of building materials course

4. Available forms of attendance: physical or electronic

5. Semester/year, first semester/first stage

6. The total number of study hours is 60 hours

7. The date this description was prepared is January 2025

8. Course objectives

The study of engineering materials has an effective role and special importance in any technological progress in all fields. Therefore, engineering materials are the main entity for various engineering works. Therefore, this course aims to introduce the student to the different types of engineering materials and examine the study of their properties and the possibility of testing the best and most appropriate of these materials to be compatible with the conditions of their use in all required engineering works. The civil engineering student will be able to properly deal with engineering materials with high ability and efficiency in all steps of any engineering work. It is required to be implemented on the ground to reach the highest technical and artistic levels.

9. Course outcomes and teaching, learning and evaluation methods

1- Cognitive objectives

A1- Knowing the properties of materials and the necessary tests for the purpose of testing their efficiency.

A2- Acquiring skills in dealing with work problems.

A3- Acquiring basic skills in choosing the appropriate materials to implement the structure to ensure the safety of the construction

At the lowest possible cost

A4- Acquiring skill in the correct handling of engineering materials with high ability and efficiency in all steps, i.e.

Engineering work required to be implemented on the ground.

B - The skills objectives of the course.

B1 The ability to choose the appropriate materials to implement the structure in a way that ensures 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, seminars.

• Exercises and activities in the lecture.

• Homework.

• Directing students to some websites to benefit and develop capabilities.

• Conducting discussion circles to explain and analyze a specific issue and find solutions to it.

Evaluation methods

• Interaction within the lecture.

• Homework and reports.

• Short tests (Quizzes).

• Semester and final exams.

C- Emotional and value goals.

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

C2- Response: Monitoring the extent of the student's interaction with the material displayed on the screen.

C3- Interest: Following up on the interest of the student who interacted most with the presented material, by increasing this interaction by requesting other programs and applications to display it.

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

C5- Forming valuable behavior: meaning that the student reaches the top of the emotional ladder and has a stable level in the lesson and does not become lazy or fidgety.

Teaching and learning methods

• Multiple choice questions.

• Completion questions.

• Understanding scientific material and engineering principles.

• Apply knowledge in a simple way to interpret data, diagnose and solve problems

Evaluation methods

• Active participation in the classroom is evidence of the student's commitment and responsibility.

• Commitment to the specified deadline for submitting the assignments and research required of the student.

• Semester and final tests express commitment and cognitive and skill achievement.

D - Transferable general and qualifying skills (other skills related to employability and personal development).

D1- Developing the student's ability to perform assignments and submit them on time.

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

D3- Developing the student's ability to dialogue and discuss.

D4- Developing the student's ability Dealing with modern technology, especially the Internet.

12. Course structure

Week Hours Required learning outcomes Name of unit/or subject Teaching method Evaluation method

The first 4, introduction, theoretical questions and discussion

The second 4: Classification of engineering subjects, theoretical questions, discussion, and quiz

Third 4 General properties of engineering materials, theoretical questions and discussion

Fourth 4 Physical Properties Theoretical Questions, Discussion, and Quote

Fifth 4 Physical properties, theoretical questions and discussion

Sixth 4 Mechanical properties: Types of loading, theoretical questions and discussion

Seventh 4

Mechanical properties: stress

Emotion

Theoretical Poisson ratio questions and discussion

Eighth 4 Mechanical properties: stress-strain curve, theoretical questions, discussion, and advice

Ninth 4: Modulus of elasticity or Young's modulus, theoretical questions and discussion

Tenth 4 Mechanical properties of engineering materials, theoretical questions and discussion

Eleventh 4 Mechanical properties of engineering materials, theoretical questions and discussion

Twelfth 4 models of engineering materials

Bricks

Wood theoretical questions and discussion

Thirteenth: 4 models of engineering materials, bonding materials, theoretical questions, discussion, and cos

Fourteenth 4 models of engineering materials, iron materials

Theoretical questions and discussion

Fifteenth: 4 models of engineering materials, theoretical questions and discussion

11. Infrastructure

1- Required prescribed books

2- Main references (sources): Properties and testing of building materials

Building materials and raw materials used in construction

Recommended books and references (scientific journals, reports,...)

B - Electronic references, Internet sites, and reliable electronic sites.

Library locations in some international universities.

12. Course development plan

Course description form

Course description

The model description provides a brief description of the main features of the course and the academic outcomes that the model student is expected to achieve if he takes advantage of the learning opportunities available for the course. Compare with the program description.

1. The educational institution, University of Maysan

2. Scientific Department/Center, Civil Engineering Department

3. Name/code of the computer science course

4. Available forms of attendance: physical or electronic

5. Semester/year, second semester/first stage

6. The total number of study hours is 60 hours

7. The date this description was prepared is January 2025

8. Course objectives

The course aims to introduce the student to computer science in general and how to use computers, starting with the general software that all learners need, and then entering the software that is more and more related to the specialization, such as accounting programs, report preparation programs, as well as engineering drawing programs. In order to be able to use more specialized programs such as analysis and engineering design programs in the more advanced stages

9. Course outcomes and teaching, learning and evaluation methods

A- Cognitive objectives

A1- Introducing the world of computers in general, which is divided into two parts: the hard parts in computers, their nature and functions, then the nature of the software and how it works on the computer.

A2- Study the basic programs, starting with the Windows operating system, such as the Office suite of programs such as Word, Excel, and PowerPoint, which represent the basic skills in editing and presenting information.

B - The skills objectives of the course.

B1 - Knowing the basic functions of computer parts and how they work.

B2 - Practice managing the computer using the Windows operating system.

B3 - Acquiring the necessary skills in working on the most important and common programs, which a student or graduate of the scientific department cannot do without learning.

Teaching and learning methods

• Theoretical lectures are to present the basic information that must be learned by the student, so that he has a package of basic concepts, and then lectures and exercises in the computer laboratory to apply what was learned in the lecture hall, practice on various programs, and solve problems, exercises, and assignments.

Evaluation methods

• Interaction within the lecture.

• Homework and reports.

• Short tests (Quizzes).

• Semester and final exams.

C- Emotional and value goals.

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

C2- Response: Monitoring the extent of the student's interaction with the material displayed on the screen.

C3- Interest: Following up on the interest of the student who interacted most with the presented material, by increasing this interaction by requesting other programs and applications to display it.

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

C5- Forming valuable behavior: meaning that the student reaches the top of the emotional ladder and has a stable level in the lesson and does not become lazy or fidgety.

Teaching and learning methods

• The usual theoretical presentation method using a whiteboard and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• The theoretical presentation method using the (data show) device and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• Laboratory presentation method using computers and associated auxiliary devices.

Evaluation methods

• Direct questions (how and why) of the topic during the theoretical and practical lecture.

• Sudden exams during the theoretical and practical lecture.

• Quarterly exams for the theoretical and practical aspects.

• Final exams for the theoretical and practical aspects.

D - General skills and qualification Transferable (other skills related to employability and personal development).

D1- Developing the student's ability to perform assignments and submit them on time.

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

D3- Developing the student's ability to dialogue and discuss.

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

10. Course structure

Week Hours Required learning outcomes Name of unit/or subject Teaching method Evaluation method

The first 2 Introduction to computer Development of Computer, theoretical lecture and written exam

The first 2 Introduction to Computer Computer Main Parts is a practical evaluation laboratory application

The second 2 Introduction to Computer Hardware Components and Functions, theoretical lecture and written exam

Second 2 Introduction to Computer Hardware Components and Functions Practical evaluation laboratory application

Third 2 Flowcharts and Algorithms Flowcharts and Algorithms Theoretical lecture Written exam

Third 2 Flowcharts and Algorithms Flowcharts and Algorithms Practical evaluation laboratory application

Fourth 2 Flowcharts and Algorithms Flowcharts and Algorithms Theoretical lecture Written exam

Fourth 2 Flowcharts and Algorithms Flowcharts and Algorithms Practical evaluation laboratory application

Fifth 2 Windows Windows theoretical lecture written exam

V 2 Windows Windows practical evaluation laboratory application

Sixth 2 Windows Windows theoretical lecture written exam

VI 2 Windows Windows practical evaluation laboratory application

Seventh 2 Microsoft Word Microsoft Word Theoretical lecture Written exam

Seventh 2 Microsoft Word Microsoft Word Practical evaluation laboratory application

Eighth 2 Microsoft Word Microsoft Word Theoretical lecture Written exam

Eighth 2 Microsoft Word Microsoft Word Practical evaluation laboratory application

Ninth 2 Microsoft Word Microsoft Word Theoretical lecture Written exam

Ninth 2 Microsoft Word Microsoft Word Practical evaluation laboratory application

Tenth 2 Microsoft Excel Microsoft Excel theoretical lecture written exam

10th 2 Microsoft Excel Microsoft Excel Practical Evaluation Laboratory Application

Eleventh 2 Microsoft Excel Microsoft Excel theoretical lecture written exam

Eleventh 2 Microsoft Excel Microsoft Excel Practical evaluation laboratory application

Twelfth 2 Microsoft Excel Microsoft Excel theoretical lecture written exam

Twelfth 2 Microsoft Excel Microsoft Excel Practical evaluation laboratory application

Thirteenth 2 Microsoft Power Point Microsoft Power Point Theoretical lecture Written exam

Thirteenth 2 Microsoft Power Point Microsoft Power Point Practical evaluation laboratory application

Fourteenth 2 Microsoft Power Point Microsoft Power Point theoretical lecture written exam

Fourteenth 2 Microsoft Power Point Microsoft Power Point Practical evaluation laboratory application

Fifteenth 2 Microsoft Power Point Microsoft Power Point theoretical lecture written exam

Fifteenth 2 Microsoft Power Point Microsoft Power Point Practical evaluation laboratory application

11. Infrastructure

1- Required textbooks - Computer basics and office applications, Part One and Two - Dr. Ghassan Hamid Abdel Majeed

2- Main references (sources) - modern books on learning computers and learning modern versions of general programs and engineering programs

A- Recommended books and references (scientific journals, reports,....) and websites.

Library locations in some international universities.

B - Electronic references, Internet sites

12. Course development plan

Course description form

Course description

The model description provides a brief description of the main features of the course and the academic outcomes that the model student is expected to achieve if he takes advantage of the learning opportunities available for the course. Compare with the program description.

1. The educational institution, University of Maysan

2. Scientific Department/Center, Civil Engineering Department

3. Course name/code Applied Mathematics 1

4. Available forms of attendance: physical or electronic

5. Semester/year, first semester/second stage

6. The total number of study hours is 60 hours

7. The date this description was prepared is January 2025

8. Course objectives

The course aims to introduce the topics of polar coordinates and vectors and their engineering applications.

9. Course outcomes and teaching, learning and evaluation methods

A- Cognitive objectives

A1- Study of polar coordinates and their relationship to Cartesian calculations and their applications.

A2- Definition of vectors and their use in analytical engineering in space and the most important engineering applications.

B - The skills objectives of the course.

B1 - Applying polar coordinates in drawing functions, calculating areas, and finding the lengths of curves.

B2 - Using vectors to find equations of lines and planes in space, in addition to scientific and engineering applications.

Teaching and learning methods

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

Evaluation methods

• Interaction within lecture.

• Homework and reports.

• Short tests (Quizzes).

• Semester and final exams.

C- Emotional and value goals.

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

C2- Response: Monitoring the extent of the student's interaction with the material displayed on the screen.

C3- Interest: Following up on the interest of the student who interacted most with the presented material, by increasing this interaction by requesting other programs and applications to display it.

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

C5- Forming valuable behavior: meaning that the student reaches the top of the emotional ladder and has a stable level in the lesson and does not become lazy or fidgety.

Teaching and learning methods

• The usual theoretical presentation method using a whiteboard and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• The theoretical presentation method using the (data show) device and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• Laboratory presentation method using special devices to measure different properties of the material under experiment.

Evaluation methods

• Direct questions (how and why) of the topic during the theoretical and practical lecture.

• Sudden exams during the theoretical and practical lecture.

• Quarterly exams for the theoretical and practical aspects.

• Final exams for the theoretical and practical aspects.

D - Transferable general and qualifying skills (other skills related to employability and personal development).

D1- Developing the student's ability to perform assignments and submit them on time.

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

D3- Developing the student's ability to dialogue and discuss.

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

10. Course structure

Week Hours Required learning outcomes Name of unit/or subject Teaching method Evaluation method

The first 4 Definition of Polar Coordinates Definition of Polar Coordinates theoretical lecture written exam

The second 4 Polar Equations and Graphs, theoretical lecture, written exam

Third 4 Relating Polar and Cartesian Coordinates, theoretical lecture, written exam

Fourth 4 Graphing Polar Coordinate Equations Symmetry and Slope theoretical lecture written exam

Fifth 4 Areas and Lengths in Polar Coordinates Area in the Plane Theoretical lecture Written exam

Sixth: 4 Length of a Polar Curve, theoretical lecture, written exam

Seventh 4 Vectors and the

Geometry of Space Three-Dimensional Coordinate Systems, theoretical lecture, written exam

Eighth 4 Vectors Component Form and Vector Algebra Operations, theoretical lecture, written exam

Ninth 4 Unit Vectors Theoretical lecture Written exam

Tenth: 4 Midpoint of a Line Segment, theoretical lecture, written exam

Eleventh 4 Applications Navigation, forces action on a single object, theoretical lecture, written exam

Twelfth 4 The Dot Product Angle Between Vectors, orthogonal Vectors, work and Vector Projections Theoretical lecture Written exam

Thirteenth 4 The Cross Product Calculating the Cross Product as a determinant, Area of a Parallelogram and Torque Theoretical lecture Written exam

Fourteenth 4 Lines and Planes in Space Lines and Line Segments in Space, The Distance from a Point to a Line in Space Theoretical lecture Written exam

Fifteenth 4 An Equation for a Plane in Space, Lines of Intersection, The Distance from a Point to a Plane Theoretical lecture Written exam

11. Infrastructure

1- Required textbooks 1. Thomas' Calculus, George B. Thomas, Jr.

2- Main references (sources)

Recommended books and references (scientific journals, reports,...) and reliable websites.

Library locations in some international universities.

B - Electronic references, Internet sites

12. Course development plan

Course description form

Course description

The model description provides a brief description of the main features of the course and the academic outcomes that the model student is expected to achieve if he takes advantage of the learning opportunities available for the course. Compare with the program description.

1. The educational institution, University of Maysan

2. Scientific Department/Center, Civil Engineering Department

3. Name/code of the course Mechanics of Materials-1

4. Available forms of attendance: physical or electronic

5. Semester/year, first semester/second stage

6. The total number of study hours is 60 hours

7. The date this description was prepared is January 2025

8. Course objectives

The course aims to present the principles of calculating stresses, strains, and stresses resulting from heat and torsion.

9. Course outcomes and teaching, learning and evaluation methods

A- Cognitive objectives

A1- Calculating stresses and strains in centrally loaded bodies.

A2 Calculate the stresses resulting from temperature changes.

A3- Calculating stresses in thin-walled cylinders.

A4- Calculating the stresses resulting from torsion and calculating the main stresses and the main levels.

B - The skills objectives of the course.

B1 - Apply quantitative and numerical methods for the purpose of solving materials mechanics problems.

B2 - Using basic knowledge to research new technologies.

B3 - Deriving and evaluating the information necessary to apply engineering analysis methods For unfamiliar issues.

Teaching and learning methods

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

Evaluation methods

• Interaction within the lecture.

• Homework and reports.

• Short tests (Quizzes).

• Semester and final exams.

C- Emotional and value goals.

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

C2- Response: Monitoring the extent of the student's interaction with the material displayed on the screen.

C3- Interest: Following up on the interest of the student who interacted most with the material presented, by increasing this interaction by requesting other programs and applications to display it.

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

C5- Forming valuable behavior: meaning that the student reaches the top of the emotional ladder and has a stable level in the lesson and does not become lazy or fidgety.

Teaching and learning methods

• The usual theoretical presentation method using a whiteboard and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• The theoretical presentation method using the (data show) device and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• Laboratory presentation method using special devices to measure different properties of the material under experiment.

Evaluation methods

• Direct questions (how and why) of the topic during the theoretical and practical lecture.

• Sudden exams during the theoretical and practical lecture.

• Quarterly exams for the theoretical and practical aspects.

• Final exams for the theoretical and practical aspects.

D - Transferable general and qualifying skills (other skills related to employability and personal development).

D1- Developing the student's ability to perform assignments and submit them on time.

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

D3- Developing the student's ability to dialogue and discuss.

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

10. Course structure

Week Hours Required learning outcomes Name of unit/or subject Teaching method Evaluation method

The first 4 Introduction stress and strain Normal stress and strain A theoretical lecture and a written exam

The second 4 Introduction stress and strain Normal stress and strain A theoretical lecture and a written exam

Third 4 Applications to Axially Loaded Members Axially Loaded Members Theoretical lecture Written exam

Fourth 4 Applications to Axially Loaded Members Axially Loaded Members Theoretical lecture Written exam

Fifth 4 Introduction to Thermal stress in axially loaded members Thermal Stresses Theoretical lecture Written exam

Sixth 4 Introduction to Thermal stress in axially loaded members Thermal Stresses Theoretical lecture Written exam

Seventh 4 Introduction to concepts Thin-Walled Cylinders Thin Wall Cylinders Theoretical lecture Written exam

Eighth 4 Introduction to concepts Thin-Walled Cylinders Thin Wall Cylinders Theoretical lecture Written exam

Ninth 4 Shear Stresses resulting from Torsion Torsion Theoretical lecture Written exam

Tenth 4 Shear Stresses resulting from Torsion Torsion Theoretical lecture Written exam

Eleventh 4 Shear Stresses resulting from Torsion Torsion theoretical lecture written exam

Twelfth 4 Introduction to stress transformation and principal stresses Stress Transformation, theoretical lecture, written exam

Thirteenth 4 Introduction to stress transformation and principal stresses Stress Transformation, theoretical lecture, written exam

Fourteenth 4 Introduction to stress transformation and principal stresses Stress Transformation, theoretical lecture, written exam

Fifteenth 4 Introduction to stress transformation and principal stresses Stress Transformation, theoretical lecture, written exam

11. Infrastructure

1- Required prescribed books: 1.Strength of Materials.

2. Mechanics of Materials, R.C. Hibbeler.

2- Main references (sources)

Recommended books and references (scientific journals, reports,...) and reliable websites.

Library locations in some international universities.

B - Electronic references, Internet sites

12. Course development plan

Adding practical laboratory hours to conduct material resistance experiments

Course description form

Course description

The model description provides a brief description of the main features of the course and the academic outcomes that the model student is expected to achieve if he takes advantage of the learning opportunities available for the course. Compare with the program description.

1. The educational institution, University of Maysan

2. Scientific Department/Center, Civil Engineering Department

3. Name/code of the course Fluid Mechanics 1

4. Available forms of attendance: physical or electronic

5. Semester/year, first semester/second stage

6. The total number of study hours is 45 theoretical hours and 30 practical hours

7. The date this description was prepared is January 2025

8. Course objectives

The course aims to study the basic methods for understanding the equilibrium and stability of fluids (liquids and gases) and their physical properties For fluids. It also provides a study of static fluids or fluids with relative stability in order to calculate the pressures and forces resulting from them.

9. Course outcomes and teaching, learning and evaluation methods

A- Cognitive objectives

A1- Understanding the physical properties of fluids such as density, viscosity, compressibility, surface tension, and capillary action.

A2- Methods of measuring pressure for static fluids.

A3- Method of calculating the forces at rest and accelerating with constant acceleration.

A4- How to calculate buoyant forces, as well as the continuity equation and the energy equation

B - The skills objectives of the course.

B1 - Apply quantitative numerical methods to solve problems related to fluid mechanics.

B2 - Using basic knowledge to research new technologies.

B3 - Deriving and evaluating the information necessary to apply engineering analysis methods to unfamiliar problems.

Teaching and learning methods

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

Evaluation methods

• Interaction within the lecture.

• Homework and reports.

• Short tests (Quizzes).

• Semester and final exams.

C- Emotional and value goals.

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

C2- Response: Monitoring the extent of the student's interaction with the material displayed on the screen.

C3- Interest: Following up on the interest of the student who interacted most with the presented material, by increasing this interaction by requesting other programs and applications to display it.

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

C5- Forming valuable behavior: meaning that the student reaches the top of the emotional ladder and has a stable level in the lesson and does not become lazy or fidgety.

Teaching and learning methods

• The usual theoretical presentation method using a whiteboard and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• The theoretical presentation method using the (data show) device and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• Laboratory presentation method using special devices to measure different properties of the material under experiment.

Evaluation methods

• Direct questions (how and why) of the topic during the theoretical and practical lecture.

• Sudden exams during the theoretical and practical lecture.

• Quarterly exams for the theoretical and practical aspects.

• Final exams for the theoretical and practical aspects.

D - Transferable general and qualifying skills (other skills related to employability and personal development).

D1- Developing the student's ability to perform assignments and submit them on time.

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

D3- Developing the student's ability to dialogue and discuss.

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

10. Course structure

Week Hours Required learning outcomes Name of unit/or subject Teaching method Evaluation method

The first 3 The properties of fluids Definition of a fluid, density , specific weight and specific gravity Theoretical lecture Written exam

Second 3 The characteristics of fluids Viscosity, pressure and perfect gas, vapor pressure, and surface tension Theoretical lecture Written exam

Third 3 Fluid statics Forces, stresses and pressure at a point A theoretical lecture and a written exam

Fourth 3 Fluid statics Basic equation of fluid statics A theoretical lecture and a written exam

Fifth 3 Fluid statics Units and scale of pressure measurements, manometers, theoretical lecture, written exam

Sixth 3 Fluid statics Forces on plane surfaces A theoretical lecture and a written exam

Seventh: 3 Fluid statics Forces components on curved surfaces, theoretical lecture, written exam

Eighth 3 Buoyancy Buoyant forces theoretical lecture written exam

Ninth: 3 Buoyancy Stability of floating and submerged bodies, theoretical lecture, written exam

Tenth 3 Fluid masses subjected to a constant acceleration Horizontal, Vertical, and Inclined accelerations Theoretical lecture Written exam

Eleventh 3 Fluid masses subjected to a constant acceleration Rotational acceleration Theoretical lecture Written exam

Twelfth 3 Fluid Dynamics Types of fluid, Types of flow, theoretical lecture, written exam

Thirteenth 3 Fluid Dynamics Continuity equation, theoretical lecture, written exam

Fourteenth 3 Equation of fluid motion Energy conservation and Bernoulli's equation Theoretical lecture Written exam

Fifteenth 3 Equation of fluid motions Energy conservation and Bernoulli's equation Theoretical lecture Written exam

11. Infrastructure

1- Required textbooks: 1. Fluid Mechanics by Streeter & Wylie

2. Fluid Mechanics, Dr. Nizar Al-Sabti.

2- Main references (sources) 1- Fluid Mechanics for Engineer by Albertson, Barton & Simons

2- Fluid Mechanics & Hydraulics (Schaums series) by Giles

Recommended books and references (scientific journals, reports,...) and reliable websites.

Library locations in some international universities.

B - Electronic references, Internet sites

12. Development plan for Course

Course description form

Course description

The model description provides a brief description of the main features of the course and the academic outcomes that the model student is expected to achieve if he takes advantage of the learning opportunities available for the course. Compare with the program description.

1. The educational institution, University of Maysan

2. Scientific Department/Center, Civil Engineering Department

3. Course name/code Engineering Survey I

4. Available forms of attendance: physical or electronic

5. Semester/year, first semester/second stage

6. The total number of study hours is 60 hours

7. The date this description was prepared is January 2025

8. Course objectives

Preparing students of the second stage to provide a scientific basis that helps the student carry out surveying applications through the use of traditional and modern techniques in designing and implementing vertical and horizontal control networks of various degrees and preparing

Compiling, designing and producing maps of all kinds, including ground and aerial surveys, and conducting high-accuracy surveys for engineering projects (dams, reservoirs, bridges, tunnels, laboratories, roads and airports).

9. Course outcomes and teaching, learning and evaluation methods

A- Cognitive objectives

A1- Applying the methods of measuring distances using a tape and applying the method of measuring vertical distances using a leveling device.

A2- Conducting the process of settlement and investigative settlement between points and reference points.

A3- Applying measurement methods in conducting all calculations and tables of longitudinal sections and applying measurement methods in

Conduct all calculations and tables of longitudinal and cross sections.

A4- Extracting and comparing the magnetic and real directions of lines and shapes.

B - The skills objectives of the course.

B1 - Work on surveying projects.

B2 - Create networks of ground control points.

B3 - Making cadastral maps of all kinds.

Teaching and learning methods

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

Evaluation methods

• Interaction within the lecture.

• Homework and reports.

• Short tests (Quizzes).

• Semester and final exams.

C- Emotional and value goals.

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

C2- Response: Monitoring the extent of the student's interaction with the material displayed on the screen.

C3- Interest: Following up on the interest of the student who interacted most with the presented material, by increasing this interaction by requesting other programs and applications to display it.

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

C5- Forming valuable behavior: meaning that the student reaches the top of the emotional ladder and has a stable level in the lesson and does not become lazy or fidgety.

Teaching and learning methods

• The usual theoretical presentation method using a whiteboard and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• The theoretical presentation method using the (data show) device and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• Laboratory presentation method using special devices to measure different properties of the material under experiment.

Evaluation methods

• Direct questions (how and why) of the topic during the theoretical and practical lecture.

• Sudden exams during the theoretical and practical lecture.

• Quarterly exams for the theoretical and practical aspects.

• Final exams for the theoretical and practical aspects.

D - Transferable general and qualifying skills (other skills related to employability and personal development).

D1- Developing the student's ability to perform assignments and submit them on time.

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

D3- Developing the student's ability to dialogue and discuss.

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

10. Course structure

Week Hours Required learning outcomes Name of unit/or subject Teaching method Evaluation method

The first 5: Introduction to surveying, surveying, theoretical and practical lecture, surprise and semester exams

The second 5: Measuring distances using a tape, a theoretical and practical lecture, and sudden and quarterly exams

Third 5: Measuring distances using tape, theoretical and practical lecture, sudden and semester exams

Fourth: 5 Settlement applications, Settlement schedule, theoretical and practical lecture, surprise and semester exams

Fifth 5 Applications of settlement, investigational settlement, theoretical and practical lecture, sudden and quarterly exams

Sixth: 5 applications of sections, longitudinal section, theoretical and practical lecture, surprise and semester exams

Seventh: 5 applications of cross sections, theoretical and practical lecture, surprise and semester exams

Eighth 5 Applications of cross sections, theoretical and practical lecture, surprise and semester exams

Ninth 5: Angle measurement, theodolite, theoretical and practical lecture, surprise and semester exams

Tenth 5: Theodolite angle measurement, theoretical and practical lecture, written exam

Eleventh 5 Theodolite angle measurement, theoretical and practical lecture, written exam

Twelfth 5 Measuring trends, theoretical lecture and practical written exam

Thirteenth 5: Measuring trends, theoretical lecture and practical written exam

The fourteenth 5 is the measurement of the atjDirections, theoretical lecture and practical written exam

Fifteenth 5: Measuring trends, theoretical lecture and practical written exam

11. Infrastructure

1- The required textbooks for engineering surveying, Yassin Obaid

2- Main references (sources)

Recommended books and references (scientific journals, reports,...) and reliable websites.

Library locations in some international universities.

B - Electronic references, Internet sites

12. Course development plan

1- Introducing the subject of geographic information systems

2- Inserting a real-time sensitizer

Course description form

Course description

The model description provides a brief description of the main features of the course and the academic outcomes that the model student is expected to achieve if he takes advantage of the learning opportunities available for the course. Compare with the program description.

1. The educational institution, University of Maysan

2. Scientific Department/Center, Civil Engineering Department

3. Name/code of the course Concrete Technology 1

4. Available forms of attendance: physical or electronic

5. Semester/year, first semester/second stage

6. The total number of study hours is 60 hours

7. The date this description was prepared is January 2025

8. Course objectives

The course aims to present the basics of concrete technology with a special focus on the properties of cement, aggregates and concrete, including the cement manufacturing process. This is to pave the way for the student to learn more aspects about concrete technology in the second semester.

9. Course outcomes and teaching, learning and evaluation methods

A- Cognitive objectives

A1- Introduction to cement and aggregates, including cement hydration

A2- Concrete industry.

A3- Strength of concrete

B - The skills objectives of the course.

B1 - Calculate the various total moisture contents of the aggregate

B2 - Methods for measuring the workability of concrete

B3 - Methods of manufacturing, delivering and pouring concrete

Teaching and learning methods

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

Evaluation methods

• Interaction within the lecture.

• Homework and reports.

• Short tests (Quizzes).

• Semester and final exams.

C- Emotional and value goals.

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

C2- Response: Monitoring the extent of the student's interaction with the material displayed on the screen.

C3- Interest: Following up on the interest of the student who interacted most with the presented material, by increasing this interaction by requesting other programs and applications to display it.

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

C5- Forming valuable behavior: meaning that the student reaches the top of the emotional ladder and has a stable level in the lesson and does not become lazy or fidgety.

Teaching and learning methods

• The usual theoretical presentation method using a whiteboard and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• The theoretical presentation method using the (data show) device and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• Laboratory presentation method using special devices to measure different properties of the material under experiment.

Evaluation methods

• Direct questions (how and why) of the topic during the theoretical and practical lecture.

• Sudden exams during the theoretical and practical lecture.

• Quarterly exams for the theoretical and practical aspects.

• Final exams for the theoretical and practical aspects.

D - Transferable general and qualifying skills (other skills related to employability and personal development).

D1- Developing the student's ability to perform assignments and submit them on time.

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

D3- Developing the student's ability to dialogue and discuss.

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

10. Course structure

Week Hours Required learning outcomes Name of unit/or subject Teaching method Evaluation method

The first 4 Introduction to cement and aggregates - Concrete Definition and Historical Development, theoretical and practical lecture, written exam

Second 4 Introduction to cement and aggregates Characteristics of Concrete A theoretical and practical lecture and a written exam

Third 4 Cementitious Binders Types of Concrete, theoretical lecture and practical written exam

Fourth 4 Cementitious Binders Factors Influencing Concrete Properties Theoretical and practical lecture Written exam

Fifth 4 Cementitious Binders Classification of binders, Manufacture of Portland cement Theoretical and practical lecture Written exam

Sixth 4 Cementitious Binders Hydration A theoretical lecture and a written exam

Seventh 4 Aggregates Types of Portland cements, The role of water, Basic tests of Portland cement Theoretical and practical lecture Written exam

Eighth 4 Aggregates Geopolymers, Magnesium phosphoric cement (MPC), Magnesium oxychloride cement Theoretical and practical lecture Written exam

Ninth 4 Aggregates Effects of aggregates, Classification of aggregates, Properties of aggregates Theoretical and practical lecture Written exam

Tenth 4 Fresh concrete Properties of aggregates, Grading aggregates, theoretical and practical lecture Written exam

Eleventh 4 Fresh concrete Shape and texture of aggregates, theoretical and practical lecture, written exam

Twelfth 4 Fresh concrete Example Problems, theoretical and practical lecture, written exam

Thirteenth 4 Fresh concrete workability of fresh concrete Theoretical lecture and practical written exam

Fourteenth 4 Fresh concrete Measurement of workability, Factors affecting workability, theoretical lecture and written exam

Fifteenth 4 Fresh concrete Segregation and bleeding, Slump loss, theoretical and practical lecture, written exam

11. Infrastructure

1- Required textbooks 1. Advanced concrete technology by Zongjin Li.

2. Concrete technology by Dr. Moaid Nory

2- Main references (sources)

Recommended books and references (scientific journals, reports,....) 1. Concrete Technology -2dn Ed by A.M. NEVILLE

B - Electronic references, Internet sites, sites with a good reputation and scientific sobriety

Library locations in some international universities.

12. Course development plan

Course description form

Course description

The model description provides a brief description of the main features of the course and the academic outcomes that the model student is expected to achieve if he takes advantage of the learning opportunities available for the course. Compare with the program description.

1. The educational institution, University of Maysan

2. Scientific Department/Center, Civil Engineering Department

3. Name/code of the computer programming course

4. Available forms of attendance: physical or electronic

5. Semester/year, first semester/second stage

6. The total number of study hours is 30 hours

7. The date this description was prepared is January 2025

8. Course objectives

Learn about the Fortran programming language and perform engineering applications using the language.

9. Course outcomes and teaching, learning and evaluation methods

A- Cognitive objectives

A1- Learn about the Fortran programming language and how to write a program.

A2- Implementing several engineering programs using the Fortran programming language.

A3- Identify variables and constants in the programming language.

A4- Identify loops, arrays, and subprograms.

B - The skills objectives of the course.

B1- Writing an engineering program in Fortran.

B2- Converting any problem to a program written in Fortran.

B3- Reserve locations for engineering data in the program's memory and use them.

B4- Linking information to engineering reality.

Teaching and learning methods

• Weekly assignments and surprise daily and weekly tests. Giving assignments and activities in classrooms. Also guiding students to important scientific sources and taking some exercises to practice on them. The practical aspect also contributes to applied knowledge.

Evaluation methods

• Interaction within the lecture.

• Homework and reports.

• Short tests (Quizzes).

• Semester and final exams.

C- Emotional and value goals.

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

C2- Response: Monitoring the extent of the student's interaction with the material displayed on the screen.

C3- Interest: Following up on the interest of the student who interacted most with the presented material, by increasing this interaction by requesting other programs and applications to display it.

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

C5- Forming valuable behavior: meaning that the student reaches the top of the emotional ladder and has a stable level in the lesson and does not become lazy or fidgety.

Teaching and learning methods

• The usual theoretical presentation method using a whiteboard and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• The theoretical presentation method using the (data show) device and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• Laboratory presentation method using special devices to measure different properties of the material under experiment.

Evaluation methods

• Direct questions (how and why) of the topic during the theoretical and practical lecture.

• Sudden exams during the theoretical and practical lecture.

• Quarterly exams for the theoretical and practical aspects.

• Final exams for the theoretical and practical aspects.

D - Transferable general and qualifying skills (other skills related to employability and personal development).

D1- Developing the student's ability to perform assignments and submit them on time.

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

D3- Developing the student's ability to dialogue and discuss.

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

10. Course structure

Week Hours Required learning outcomes Name of unit/or subject Teaching method Evaluation method

The first 2, the program, configuration section, program structure, introduction to the Fortran language, theoretical lecture, written exam

The second: 2 Types of variables and constants and how to write them. Variables and constants. A theoretical lecture. A written exam

Third 2: How to start writing inputs and outputs, inputs and outputs, theoretical lecture, written exam

Fourth 2: GOTO statement and its types, FORMAT statement, theoretical lecture, written exam

Fifth 2 Identify expressions for control. Expressions for control and control. A theoretical lecture and a written exam

Sixth 2, loop rules, loop phrases, DO loop, theoretical lecture, written exam

The seventh 2, arithmetic and logical if statements, if statements and their types, IF, theoretical lecture, written exam

Eighth 2 Rules of relationships and examples Some relationships between DO and IF, theoretical lecture and written exam

Ninth: 2 sets of examples, multiple selected examples, theoretical lecture, written exam

Tenth: 2 sets of notes, general summaries of the previous semester, theoretical lecture, and written exam

Eleventh 2 Introduction and properties of arrays, indexed variables, ARRAY, theoretical lecture, written exam

Twelfth 2 Rules for the Dimensional Expression The Dimensional Expression DIMENSION Theoretical lecture Written exam

Thirteenth 2 Using more than one method for reading and printing. Reading and printing matrices. A theoretical lecture and a written exam

Fourteenth 2 Where statement Choosing the domain of the matrix, theoretical lecture, written exam

Fifteenth 2 External and internal functions, subroutines, theoretical lecture, written exam

11. Infrastructure

1- Required textbooks for programming in the Fortran language

2- Main references (sources): programming lectures in the Fortran language

A - Recommended books and references (scientific journals, reports,....) any scientific material available via the Internet

B - Electronic references, Internet sites

12. Course development plan

Working to raise the student's skills to help them quickly integrate into society and hone their skills in a way that suits the need for scientific research and the labor market.

Course description form

Course description

An introduction to human rights, the democratic system, and intellectual positions on them, along with an explanation of their various models and the relationship of civil society to them.

1. The educational institution, University of Maysan

2. Scientific Department/Center, Civil Engineering Department

3. Name/code of the course Human Rights and Democracy

4. Available forms of attendance: physical or electronic

5. Semester/year, first semester/first stage

6. The total number of study hours is 30 hours

7. The date this description was prepared is January 2025

8. Course objectives

Introducing the student to human rights and their relationship to the democratic system and clarifying its characteristics.

9. Course outcomes and teaching, learning and evaluation methods

A- Cognitive objectives

A1- Historical introduction to democracy.

A2- Different models of democracy

A3- Rights and responsibilities

A4- Civil liberties

B - The skills objectives of the course.

B1 - Applying quantitative methods for the purpose of explaining and interpreting the idea of rights and democracy.

B2 - Using basic knowledge to examine the historical development of the concept of freedom.

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

Teaching and learning methods

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

Evaluation methods

● Interaction within the lecture.

● Homework and reports.

● Short tests (Quizzes).

● Semester and final exams.

C- Emotional and value goals.

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

C2- Response: Monitoring the extent of the student's interaction with the material displayed on the screen.

C3- Interest: Following up on the interest of the student who interacted most with the material presented, by increasing this interaction by requesting other programs and applications to display it.

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

C5- Forming valuable behavior: meaning that the student reaches the top of the emotional ladder and has a stable level in the lesson and does not become lazy or fidgety.

Teaching and learning methods

● The usual theoretical presentation method using a whiteboard and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

● The theoretical presentation method using the (data show) device and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

● Laboratory presentation method using special devices to measure different properties of the material under experiment.

Evaluation methods

● Direct questions (how and why) of the topic during the theoretical and practical lecture.

● Sudden exams during the theoretical and practical lecture.

● Quarterly exams for the theoretical and practical aspects.

● Final exams for the theoretical and practical aspects.

D - Transferable general and qualifying skills (other skills related to employability and personal development).

D1- Developing the student's ability to perform assignments and submit them on time.

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

D3- Developing the student's ability to dialogue and discuss.

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

10. Course structure

Week Hours Required learning outcomes Name of unit/or subject Teaching method Evaluation method

The first 2: A historical introduction to democratic democracy, a theoretical lecture, and a written exam

The second 2: Different models of democratic democracy, theoretical lecture, written exam

Third 2 Intellectual positions on democracy Democracy Theoretical lecture Written exam

Fourth 2 Islam and Democracy Democracy, theoretical lecture, written exam

Fifth 2, Parliamentary Democracy, theoretical lecture, written exam

Sixth 2 The basic components of democracy, theoretical lecture, written exam

Seventh 2 Civil Society Democracy, theoretical lecture, written exam

Eighth 2 The historical development of human rights Human rights, theoretical lecture, written exam

Alta Q2 Rights and responsibilities, human rights, theoretical lecture, written exam

Tenth 2 Equality, law, human rights, theoretical lecture, written exam

Eleventh 2: The Constitution, Human Rights, Theoretical Lecture, Written Exam

Twelfth 2: Inalienable rights, human rights, theoretical lecture, written exam

Thirteenth 2: The concept of citizenship, human rights, theoretical lecture, written exam

Fourteenth 2 Majority rule and minority rights, human rights, theoretical lecture, written exam

Fifteenth 2: Judicial procedures, human rights, theoretical lecture, written exam

11. Infrastructure

1- The required textbooks on human rights, children and democracy from the Ministry of Higher Education and Scientific Research - Tikrit University

2- Main references (sources)

Recommended books and references (scientific journals, reports,...) and reliable websites.

Library locations in some international universities.

B - Electronic references, Internet sites

12. Course development plan

Course description form

Course description

The model description provides a brief description of the main features of the course and the academic outcomes that the model student is expected to achieve if he takes advantage of the learning opportunities available for the course. Compare with the program description.

1. The educational institution, University of Maysan

2. Scientific Department/Center, Civil Engineering Department

3. Name/code of the applied mathematics course 2

4. Available forms of attendance: physical or electronic

5. Semester/Year, Second Semester/Second Stage

6. The total number of study hours is 60 hours

7. The date this description was prepared is January 2025

8. Course objectives

The course aims to introduce the topics of partial differentiation, multiple integrals, and their engineering applications.

9. Course outcomes and teaching, learning and evaluation methods

A- Cognitive objectives

A1- Study of partial derivation and its applications.

A2- Study of multiple integrals and their engineering applications.

B - The skills objectives of the course.

B1 - Study the partial derivative of multivariable functions, the chain rule, vector derivatives, and critical points.

B2 - Studying multiple integrals using Cartesian and polar coordinates and calculating areas, volumes, centers of gravity, and moments of inertia.

Teaching and learning methods

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

Evaluation methods

• Interaction within the lecture.

• Homework and reports.

• Short tests (Quizzes).

• Semester and final exams.

C- Emotional and value goals.

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

C2- Response: Monitoring the extent of the student's interaction with the material displayed on the screen.

C3- Interest: Following up on the interest of the student who interacted most with the material presented, by increasing this interaction by requesting other programs and applications to display it.

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

C5- Forming valuable behavior: meaning that the student reaches the top of the emotional ladder and has a stable level in the lesson and does not become lazy or fidgety.

Teaching and learning methods

• The usual theoretical presentation method using a whiteboard and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• The theoretical presentation method using the (data show) device and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• Laboratory presentation method using special devices to measure different properties of the material under experiment.

Evaluation methods

• Direct questions (how and why) of the topic during the theoretical and practical lecture.

• Sudden exams during the theoretical and practical lecture.

• Quarterly exams for the theoretical and practical aspects.

• Final exams for the theoretical and practical aspects.

D - Transferable general and qualifying skills (other skills related to employability and personal development).

D1- Developing the student's ability to perform assignments and submit them on time.

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

D3- Developing the student's ability to dialogue and discuss.

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

10. Course structure

Week Hours Required learning outcomes Name of unit/or subject Teaching method Evaluation method

The first 4 Partial Derivatives Functions of Several Variables, Domains and Ranges A theoretical lecture A written exam

The second 4 Limits and Continuity in Higher Dimensions Limits for Functions of Two Variables A theoretical lecture A written exam

Third 4 Partial Derivatives Partial Derivatives of a Function of Two and Three Variables Second-Order and higher Partial Derivatives Theoretical lecture Written exam

Fourth 4 The Chain Rule The Chain Rule and Implicit Differentiation A theoretical lecture and a written exam

Fifth 4 Directional Derivatives and Gradient Vectors Directional Derivatives and Gradient Vectors Theoretical lecture Written exam

Sixth 4 Tangent Planes and Differentials Tangent Planes and Normal Lines A theoretical lecture and a written exam

Seventh 4 Estimating Change in a SSpecific Direction Estimating Change in a Specific Direction A theoretical lecture and a written exam

Eighth 4 Extreme Values and Saddle Points Extreme Values and Saddle Points Theoretical lecture Written exam

Ninth 4 Multiple Integrals Double and triple integrals A theoretical lecture and a written exam

Tenth 4 Area by Double Integration Area by Double Integration Theoretical lecture Written exam

Eleventh 4 Double Integrals in Polar Form Double Integrals in Polar Form, Changing Cartesian Integrals into Polar Integrals Theoretical lecture Written exam

Twelfth 4 Applications Area, volume, centroid and moment of inertia, theoretical lecture, written exam

Thirteenth 4 Triple Integrals in Cylindrical and Spherical Coordinates Triple Integrals in Cylindrical and Spherical Coordinates Theoretical lecture Written exam

Fourteenth 4 Complex Numbers Complex Numbers, Argand Diagrams, Euler's Formula Theoretical lecture Written exam

Fifteenth 4 Operations on complex number Addition, subtraction, multiplication and division A theoretical lecture and a written exam

11. Infrastructure

1- Required textbooks 1. Thomas' Calculus, George B. Thomas, Jr.

2- Main references (sources)

Recommended books and references (scientific journals, reports,...) and reliable websites.

Library locations in some international universities.

B - Electronic references, Internet sites

12. Course development plan

Course description form

Course description

The model description provides a brief description of the main features of the course and the academic outcomes that the model student is expected to achieve if he takes advantage of the educational opportunities available for the course. Compare with the program description.

1. The educational institution, University of Maysan

2. Scientific Department/Center, Civil Engineering Department

3. Name/code of the course Mechanics of Materials-2

4. Available forms of attendance: physical or electronic

5. Semester/Year, Second Semester/Second Phase

6. The total number of study hours is 60 hours

7. The date this description was prepared is January 2025

8. Course objectives

The course aims to present the principles of analyzing beams and calculating stresses in them, as well as slender columns.

9. Course outcomes and teaching, learning and evaluation methods

A- Cognitive objectives

A1- Calculating shear forces and bending moments in beams.

A2Calculation of stresses in beams.

A3- Calculating deformations in thresholds.

A4- Analysis of skinny columns.

B - The skills objectives of the course.

B1 - Apply quantitative and numerical methods for the purpose of solving materials mechanics problems.

B2 - Using basic knowledge to research new technologies.

B3 - Deriving and evaluating the information necessary to apply engineering analysis methods to unfamiliar problems.

Teaching and learning methods

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

Evaluation methods

● Interaction within the lecture.

● Homework and reports.

● Short tests (Quizzes).

● Semester and final exams.

C- Emotional and value goals.

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

C2- Response: Monitoring the extent of the student's interaction with the material displayed on the screen.

C3- Interest: Following up on the interest of the student who interacted most with the presented material, by increasing this interaction by requesting other programs and applications to display it.

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

C5- Forming valuable behavior: meaning that the student reaches the top of the emotional ladder and has a stable level in the lesson and does not become lazy or fidgety.

Teaching and learning methods

● The usual theoretical presentation method using a whiteboard and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

● The theoretical presentation method using the (data show) device and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

● Laboratory presentation method using special devices to measure different properties of the material under experiment.

Evaluation methods

● Direct questions (how and why) of the topic during the theoretical and practical lecture.

● Sudden exams during the theoretical and practical lecture.

● Quarterly exams for the theoretical and practical aspects.

● Final exams for the theoretical and practical aspects.

D - Transferable general and qualifying skills (other skills related to employability and personal development).

D1- Developing the student's ability to perform assignments and submit them on time.

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

D3- Developing the student's ability to dialogue and discuss.

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

10. Course structure

Week Hours Required learning outcomes Name of unit/or subject Teaching method Evaluation method

The first 4: Introduction to Beam Analysis Beams, theoretical lecture, written exam

The second 4 Determination of Shear Force Shear forces, theoretical lecture, written exam

Third 4 Determination of Shear Force Shear forces, theoretical lecture, written exam

Fourth 4 Determination of Shear Force Shear forces theoretical lecture written exam

Fifth 4 Determination of Bending Moments Bending Moment Theoretical lecture Written exam

Sixth 4 Determination of Bending Moments Bending Moment Theoretical lecture Written exam

Seventh 4 Determination of Bending Moments Bending Moment Theoretical lecture Written exam

Eighth 4 Flexural Formula and Bending Stress Bending Stresses Theoretical lecture Written exam

Ninth 4 Flexural Formula and Bending Stress Bending Stresses Theoretical lecture Written exam

Tenth 4 Introduction to Shear Stress in Beams Shear Stresses, theoretical lecture, written exam

Eleventh 4 Introduction to Shear Stress in Beams Shear Stresses, theoretical lecture, written exam

Twelfth 4 Introduction to Shear Stress in Beams Shear Stresses, theoretical lecture, written exam

Thirteenth 4 Introduction to Beam Deflection Deflection of Beams A theoretical lecture and a written exam

Fourteenth 4 Introduction to Beam Deflection Deflection of Beams A theoretical lecture and a written exam

Fifteenth 4 Introduction to Column Buckling Column Buckling Theoretical lecture Written exam

11. Infrastructure

1- Required prescribed books: 1.Strength of Materials.

2. Mechanics of Materials, R.C. Hibbeler.

2- Main references (sources)

Recommended books and references (scientific journals, reports,...) and reliable websites.

Library locations in some international universities.

B - Electronic references, Internet sites

12. Course development plan

Adding practical laboratory hours to conduct material resistance experiments

Course description form

Course description

The model description provides a brief description of the main features of the course and the academic outcomes that the model student is expected to achieve if he takes advantage of the learning opportunities available for the course. Compare with the program description.

1. The educational institution, University of Maysan

2. Scientific Department/Center, Civil Engineering Department

3. Course name/code Fluid Mechanics II

4. Available forms of attendance: physical or electronic

5. Semester/Year, Second Semester/Second Stage

6. The total number of study hours is 45 theoretical hours and 30 practical hours

7. The date this description was prepared is January 2025

8. Course objectives

The course aims to present the basic methods for studying fluids in motion and measuring water discharges. Knowledge of major and secondary losses and methods of connecting pipes. Also know how to find water discharges and pressures in fluid networks.

9. Course outcomes and teaching, learning and evaluation methods

A- Cognitive objectives

A1- Methods of measuring discharges of water flow in pipes, tanks, and open channels

A2- Methods of knowing the type of flow.

A3- Methods of calculating major and secondary losses.

A4- Methods of calculating the equivalent pipe, connecting pipes in series and parallel, and methods of calculating flow in

Branched pipes and liquefaction networks, as well as studying the flow of open channels and finding the best cross-section

Hydraulic and critical depth.

B - The skills objectives of the course.

B1 - Apply quantitative and numerical methods to solve problems related to fluid mechanics.

B2 - Use basic knowledge to research new technologies.

B3 - Deriving and evaluating the information necessary to apply engineering analysis methods to unfamiliar problems.

Teaching and learning methods

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

Evaluation methods

• Interaction within the lecture.

• Homework and reports.

• Short tests (Quizzes).

• Semester and final exams.

C- Emotional and value goals.

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

C2- Response: Monitoring the extent of the student's interaction with the material displayed on the screen.

C3- Interest: Following up on the interest of the student who interacted most with the material presented, by increasing this interaction by requesting other programs and applications to display it.

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

C5- Forming valuable behavior: meaning that the student reaches the top of the emotional ladder and has a stable level in the lesson and does not become lazy or fidgety.

Teaching and learning methods

• The usual theoretical presentation method using a whiteboard and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• The theoretical presentation method using the (data show) device and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• Laboratory presentation method using special devices to measure different properties of the material under experiment.

Evaluation methods

• Direct questions (how and why) of the topic during the theoretical and practical lecture.

• Sudden exams during the theoretical and practical lecture.

• Quarterly exams for the theoretical and practical aspects.

• Final exams for the theoretical and practical aspects.

D - Transferable general and qualifying skills (other skills related to employability and personal development).

D1- Developing the student’s ability to perform assignments and submit them on time.

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

D3- Developing the student's ability to dialogue and discuss.

D4- Developing A's capacity For students to deal with modern technology, especially the Internet.

10. Course structure

Week Hours Required learning outcomes Name of unit/or subject Teaching method Evaluation method

The first 3 Fluid Dynamics Application of continuity equation, theoretical lecture, written exam

Second 3 Fluid Dynamics Application of Energy equation, theoretical lecture, written exam

Third 3 Fluid Dynamics Energy line and hydraulic grade line, theoretical lecture, written exam

Fourth 3 Fluid Dynamics Energy line and hydraulic grade line, theoretical lecture, written exam

Fifth 3 Measurements of flow rate Measurements of flow in pipelines A theoretical lecture and a written exam

Sixth 3 Measurements of flow rate Measurements of flow in tanks A theoretical lecture and a written exam

Seventh 3 Measurements of flow rate Measurements of flow in open channels A theoretical lecture and a written exam

Eighth 3 Flow in pipes Laminar & Turbulent flows, Reynolds No. Theoretical lecture and written exam

Ninth 3 Flow in pipes Major losses, theoretical lecture, written exam

Tenth: 3 Flow in pipes, Minor losses, Equivalent pipe, theoretical lecture, written exam

Eleventh 3 Flow in pipes Parallel pipes, series pipes A theoretical lecture and a written exam

Twelfth 3 Flow in pipes Branching pipes Theoretical lecture Written exam

Thirteenth 3 Flow in pipes Pipe networks A theoretical lecture and a written exam

Fourteenth 3 Flow in open channels Types of flow, Best hydraulic section, theoretical lecture, written exam

Fifteenth 3 Flow in open channels Specific energy and critical depth A theoretical lecture and a written exam

11. Infrastructure

1- Required textbooks: 1. Fluid Mechanics by Streeter & Wylie

2. Fluid Mechanics, Dr. Nizar Al-Sabti.

2- Main references (sources) 3- Fluid Mechanics for Engineer by Albertson, Barton & Simons

4- Fluid Mechanics & Hydraulics (Schaums series) by Giles

Recommended books and references (scientific journals, reports,...) and reliable websites.

Library locations in some international universities.

B - Electronic references, Internet sites

12. Course development plan

Course description form

Course description

The model description provides a brief description of the main features of the course and the academic outcomes that the model student is expected to achieve if he takes advantage of the learning opportunities available for the course. Compare with the program description.

1. The educational institution, University of Maysan

2. Scientific Department/Center, Civil Engineering Department

3. Course name/code Engineering Surveying II

4. Available forms of attendance: physical or electronic

5. Semester/Year, Second Semester/Second Phase

6. The total number of study hours is 60 hours

7. The date this description was prepared is January 2025

8. Course objectives

Preparing the students of the second stage to have a scientific basis that helps the student to carry out surveying applications through

How to create vertical horizontal control networks, ground control points, geodetic coordinate systems, and convert topographic coordinates to geodesic

9. Course outcomes and teaching, learning and evaluation methods

A- Cognitive objectives

A1- Applying area measurement methods

A2- Applying the method of measuring horizontal curves.

A3- Applying the method of measuring vertical curves.

A4- Application of volume measurement methods as well as an introduction to geographic information systems.

B - The skills objectives of the course.

B1 - Work on surveying projects.

B2 - Making curve networks.

B3 - Calculating area quantities and volumes.

Teaching and learning methods

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

Evaluation methods

- Interaction within the lecture.
- Homework and reports.
- Short tests (Quizzes).
- Semester and final exams.

C- Emotional and value goals.

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

C2- Response: Monitoring the extent of the student's interaction with the material displayed on the screen.

C3- Interest: Following up on the interest of the student who interacted most with the presented material, by increasing this interaction by requesting other programs and applications to display it.

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

C5- Forming valuable behavior: meaning that the student reaches the top of the emotional ladder and has a stable level in the lesson and does not become lazy or fidgety.

Teaching and learning methods

• The usual theoretical presentation method using a whiteboard and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• The theoretical presentation method using the (data show) device and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• Laboratory presentation method using special devices to measure different properties of the material under experiment.

Evaluation methods

• Direct questions (how and why) of the topic during the theoretical and practical lecture.

• Sudden exams during the theoretical and practical lecture.

• Quarterly exams for the side Theoretical and practical.

• Final exams for the theoretical and practical aspects.

D - Transferable general and qualifying skills (other skills related to employability and personal development).

D1- Developing the student’s ability to perform assignments and submit them on time.

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

D3- Developing the student’s ability to dialogue and discuss.

D4- Developing the student’s ability to deal with modern technology, especially the Internet.

10. Course structure

Week Hours Required learning outcomes Name of unit/or subject Teaching method Evaluation method

The first 5: Area calculations, theoretical and practical lecture, surprise and semester exams

The second 5: Area calculations, theoretical and practical lecture, surprise and semester exams

Third 5: Calculating areas, theoretical and practical lecture, surprise and semester exams

Fourth 5: Calculating areas, theoretical and practical lecture, surprise and semester exams

Fifth 5 Applications of curves, vertical curves, theoretical and practical lecture, surprise and semester exams

Sixth 5 Applications of curves, vertical curves, theoretical and practical lecture, surprise and semester exams

Seventh: 5 applications of curves, vertical curves, theoretical and practical lecture, surprise and semester exams

Eighth: 5 Applications of curves, horizontal curves, theoretical and practical lecture, surprise and semester exams

Ninth: 5 Applications of curves, horizontal curves, theoretical and practical lecture, surprise and semester exams

Tenth: 5 Applications of curves, horizontal curves, theoretical and practical lecture, written exam

Eleventh: 5 applications of volumes, volumes, theoretical and practical lecture, written exam

Twelfth 5 applications of volumes, volumes, theoretical and practical lecture, written exam

Thirteenth: 5 applications of volumes, volumes, theoretical and practical lecture, written exam

Fourteenth 5 Geographic Information Systems Introduction to Geographic Information Systems, theoretical and practical lecture, written exam

Fifteenth 5 Geographic Information Systems Introduction to Geographic Information Systems, theoretical and practical lecture, written exam

11. Infrastructure

1- The required textbooks for engineering surveying, Yassin Obaid

2- Main references (sources)

Recommended books and references (scientific journals, reports,...) and reliable websites.

Library locations in some international universities.

B - Electronic references, Internet sites

12. Course development plan

1- Introducing the subject of geographic information systems

2- Inserting a real-time sensitizer

Course description form

Course description

The model description provides a brief description of the main features of the course and the academic outcomes that the model student is expected to achieve if he takes advantage of the learning opportunities available for the course. Compare with the program description.

1. The educational institution, University of Maysan

2. Scientific Department/Center, Civil Engineering Department

3. Name/code of the course Concrete Technology 1

4. Available forms of attendance: physical or electronic

5. Semester/Year, Second Semester/Second Phase

6. The total number of study hours is 60 hours

7. The date this description was prepared is January 2025

8. Course objectives

The course aims to present the basics of concrete technology with a special focus on the properties of cement, aggregates and concrete, including the cement manufacturing process. This is to pave the way for the student to learn more aspects about concrete technology in the second semester.

9. Course outcomes and teaching, learning and evaluation methods

A- Cognitive objectives

A1- Design of concrete mixes

A2- Durability of concrete.

A3- Concrete deformation.

A4 - Non-destructive tests for concrete

B - The skills objectives of the course.

B1 - Learn to design concrete mixes using the American and British method

Teaching and learning methods

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

Evaluation methods

• Interaction within the lecture.

• Homework and reports.

• Short tests (Quizzes).

• Semester and final exams.

C- Emotional and value goals.

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

C2- Response: Monitoring the extent of the student's interaction with the material displayed on the screen.

C3- Interest: Following up on the interest of the student who interacted most with the presented material, by increasing this interaction by requesting other programs and applications to display it.

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

C5- Forming valuable behavior: meaning that the student reaches the top of the emotional ladder and has a stable level in the lesson and does not become lazy or fidgety.

Teaching and learning methods

• The usual theoretical presentation method using a whiteboard and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• The theoretical presentation method using the (data show) device and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• Laboratory presentation method using special devices to measure different properties of the material under experiment.

Evaluation methods

• Direct questions (how and why) of the topic during the theoretical and practical lecture.

• Sudden exams during the lecture a For theory and practice.

• Quarterly exams for the theoretical and practical aspects.

• Final exams for the theoretical and practical aspects.

D - Transferable general and qualifying skills (other skills related to employability and personal development).

D1- Developing the student's ability to perform assignments and submit them on time.

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

D3- Developing the student's ability to dialogue and discuss.

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

10. Course structure

Week Hours Required learning outcomes Name of unit/or subject Teaching method Evaluation method

The first: 4 Concrete Mix Design American Method, a theoretical lecture and a written exam

The second 4 Concrete Mix Design American Method, theoretical lecture and practical written exam

Third 4 Concrete Mix Design American Method A theoretical lecture and a written exam

Fourth 4 Concrete Mix Design American Method A theoretical lecture and a written exam

Fifth 4 Concrete Mix Design British Method A theoretical lecture and a written exam

Sixth 4 Concrete Mix Design British Method A theoretical lecture and a written exam

Seventh 4 Concrete Mix Design British Method A theoretical lecture and a written exam

Eighth 4 Concrete Mix Design British Method A theoretical lecture and a written exam

Ninth 4 Concrete Mix Design Calculation of Concrete raw material quantities Theoretical and practical lecture Written exam

Tenth 4 Deformation of Concrete Dimensional A theoretical lecture and a written exam

Eleventh 4 Deformation of Concrete Stability Shrinkage and Creep Theoretical and practical lecture Written exam

Twelfth 4 Durability of Concrete Dimensional A theoretical lecture and a written exam

Thirteenth 4 Durability of Concrete Stability Shrinkage and Creep Theoretical and practical lecture Written exam

Fourteenth 4 Non-Destructive Tests Durability Theoretical lecture and practical written exam

Fifteenth 4 Non-Destructive Tests Durability Theoretical lecture and practical written exam

11. Infrastructure

1- Required textbooks 1. Advanced concrete technology by Zongjin Li.

2. Concrete technology by Dr. Moaid Nory

2- Main references (sources)

Recommended books and references (scientific journals, reports,....) 1. Concrete Technology -2dn Ed by A.M. NEVILLE

B - Electronic references, Internet sites, sites with a good reputation and scientific sobriety

Library locations in some international universities.

12. Course development plan

Course description form

Course description

The model description provides a brief description of the main features of the course and the academic outcomes that the model student is expected to achieve if he takes advantage of the learning opportunities available for the course. Compare with the program description.

1. The educational institution, University of Maysan

2. Scientific Department/Center, Civil Engineering Department

3. Name/code of the engineering statistics course

4. Available forms of attendance: physical or electronic

5. Semester/Year, Second Semester/Second Stage

6. The total number of study hours is 30 hours

7. The date this description was prepared is January 2025

8. Course objectives

Analyzing, organizing and describing data with tables and graphics, knowing measures of dispersion and central tendency, in addition to knowing probability theory and inference from data to make decisions and link them to engineering reality.

9. Course outcomes and teaching, learning and evaluation methods

A- Cognitive objectives

A1- Identify the importance of statistics and its divisions.

A2- Learn how to link and represent statistical data with tables or graphics.

A3- Identify the most important measures of central tendency and dispersion of data.

A4- Learning about probability theory and its various distributions, learning about designing samples, estimating them, and knowing their properties

B - The skills objectives of the course.

B1- Analyzing, organizing, and describing data with tables or curves.

B2- Describe the averages of the data and methods for measuring their dispersion.

B3- Engineering inference from statistical data to make the appropriate decision.

B4- Linking information to engineering reality.

Teaching and learning methods

• Weekly assignments and surprise daily and weekly tests. Giving assignments and activities in classrooms. Also guiding students to important scientific sources and taking some exercises to practice on them.

Evaluation methods

• Interaction within the lecture.

• Homework and reports.

• Short tests (Quizzes).

• Semester and final exams.

C- Emotional and value goals.

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

C2- Response: Monitoring the extent of the student's interaction with the material displayed on the screen.

C3- Interest: Following up on the interest of the student who interacted most with the material presented, by increasing this interaction by requesting other programs and applications to display it.

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

C5- Forming valuable behavior: meaning that the student reaches the top of the emotional ladder and has a stable level in the lesson and does not become lazy or fidgety.

Teaching and learning methods

• The usual theoretical presentation method using a whiteboard and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• The theoretical presentation method using the (data show) device and relying on the (how and why) method Topic and according to the teaching curriculum for the subject.

• Laboratory presentation method using special devices to measure different properties of the material under experiment.

Evaluation methods

• Direct questions (how and why) of the topic during the theoretical and practical lecture.

• Sudden exams during the theoretical and practical lecture.

• Quarterly exams for the theoretical and practical aspects.

• Final exams for the theoretical and practical aspects.

D - Transferable general and qualifying skills (other skills related to employability and personal development).

D1- Developing the student's ability to perform assignments and submit them on time.

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

D3- Developing the student's ability to dialogue and discuss.

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

10. Course structure

Week Hours Required learning outcomes Name of unit/or subject Teaching method Evaluation method

The first 2 brief definition in statistics INTRODUCTION TO ENGINEERING STATISTICS theoretical lecture written exam

Second 2 Frequency distributions, Frequency distributions table PRESENTATION OF STATISTICS DATA cont. Theoretical lecture and written exam

Third 2 Cumulative frequency distribution, Graphical representation of data PRESENTATION OF STATISTICS DATA Theoretical lecture Written exam

Fourth 2 Cumulative frequency curves, Histogram, Frequency polygon Graphical representation of data theoretical lecture written exam

Fifth 2 Measures of center, four types MEASURES OF CENTRAL LOCATION Theoretical lecture Written exam

Sixth 2 Measures of dispersion, four types, Probability theory MEASURES OF DISPERSION, THE PROBABILITY Theoretical lecture Written exam

Seventh 2 Combinations of Three or More Events THE PROBABILITY cont. Theoretical lecture and written exam

Eighth 2 Probability theory rules, Conditional Probability, Bayes' theorems THE PROBABILITY cont. Theoretical lecture and written exam

Ninth 2 Geometric Probability examples, Geometric Probability, theoretical lecture, written exam

Tenth 2 Discrete probability distribution, Discrete Uniform Distribution PROBABILITY DISTRIBUTION, theoretical lecture, written exam

Eleventh 2 Geometric Distribution, Negative binomial Distribution, Binomial Distribution PROBABILITY DISTRIBUTION, cont. Theoretical lecture and written exam

Twelfth 2 Continuous Probability Distributions, Continuous Uniform Distributions, Normal Distributions, Exponential Distributions, Continuous Probability Distributions Theoretical lecture Written exam

Thirteenth 2 Sampling Distribution of the Sample Mean, Central Limit Theorem, applications SAMPLING DISTRIBUTION Theoretical lecture Written exam

Fourteenth 2 Expectation properties, Moments THE EXPECTATION Theoretical lecture Written exam

Fifteenth 2 point estimator, interval estimator THE ESTIMATION Theoretical lecture Written exam

11. Infrastructure

1- Required textbooks on statistics and its engineering applications

Introduction to Statistics, Dr. Khashi Al-Rawi

2- Main references (sources) Lectures on Statistics

Recommended books and references (scientific journals, reports,....) Fundamentals of Behavioral Statistics, 1988

B - Electronic references, Internet sites

12. Course development plan

Working to raise the student's skills to help them quickly integrate into society and hone their skills in a way that suits the need for scientific research and the labor market.

Course description form

Course description

The model description provides a brief description of the main features of the course and the academic outcomes that the model student is expected to achieve if he takes advantage of the educational opportunities available for the course. Compare with the program description.

1. The educational institution, University of Maysan

2. Scientific Department/Center, Civil Engineering Department

3. Name/code of the building construction course

4. Available forms of attendance: physical or electronic

5. Semester/Year, Second Semester/Second Phase

6. The total number of study hours is 60 hours

7. The date this description was prepared is January 2025

8. Course objectives

The course aims to provide the student with information on the details and steps of implementing engineering projects. Such as earthworks, foundation works, pillars, brick construction, finishes, etc.

9. Course outcomes and teaching, learning and evaluation methods

A- Cognitive objectives

A1- Study the steps for implementing construction projects

A2- Study the details and requirements for implementing excavation works, foundations, walls and roofs

A3- Knowing how to choose the appropriate construction equipment for each job

A4- Design of brick walls

B - The skills objectives of the course.

B1 - Know the details of earthworks

B2 - Knowing the details of foundation and pillar work

B3 - Know the details of brick works

B4- Application of the design of brick walls

Teaching and learning methods

• Scientific and research skills are developed through teaching and learning activities.

• Analytical and problem-solving skills are developed further through a set of problems prepared by lecturers, through small study groups, and all submitted work is evaluated and responded to.

Evaluation methods

• Interaction within the lecture.

• Homework and reports.

• unless Short tests (QZs).

• Semester and final exams.

C- Emotional and value goals.

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

C2- Response: Monitoring the extent of the student's interaction with the material displayed on the screen.

C3- Interest: Following up on the interest of the student who interacted most with the presented material, by increasing this interaction by requesting other programs and applications to display it.

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

C5- Forming valuable behavior: meaning that the student reaches the top of the emotional ladder and has a stable level in the lesson and does not become lazy or fidgety.

Teaching and learning methods

• The usual theoretical presentation method using a whiteboard and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• The theoretical presentation method using the (data show) device and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• Laboratory presentation method using special devices to measure different properties of the material under experiment.

Evaluation methods

• Direct questions (how and why) of the topic during the theoretical and practical lecture.

• Sudden exams during the theoretical and practical lecture.

• Quarterly exams for the theoretical and practical aspects.

• Final exams for the theoretical and practical aspects.

D - Transferable general and qualifying skills (other skills related to employability and personal development).

D1- Developing the student's ability to perform assignments and submit them on time.

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

D3- Developing the student's ability to dialogue and discuss.

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

10. Course structure

Week Hours Required learning outcomes Name of unit/or subject Teaching method Evaluation method

The first: 4 steps for starting an engineering project, an introduction to building construction, a theoretical lecture, and a written exam

The second 4 details and requirements for earthworks, earthworks, theoretical lecture, written exam

Third 4: Details of attributing excavations, attributing aspects of excavations, theoretical lecture, written exam

The fourth: 4 methods and techniques for withdrawing water from work sites, methods of discharging water, a theoretical lecture, and a written exam

Fifth 4 Details and requirements for shallow foundation works Shallow foundation works A theoretical lecture Written exam

Sixth 4 Details and requirements of the pillars, pillar work, theoretical lecture, written exam

Seventh 4 Requirements for concrete works Concrete works, theoretical lecture, written exam

Eighth 4 Details of brick construction, brick works, theoretical lecture, written exam

Ninth: 4 steps for designing brick walls. Structural design for walls built with bricks. Theoretical lecture. Written exam.

Tenth 4 Non-structural requirements for wall works Requirements for walls A theoretical lecture and a written exam

Eleventh 4 Details and types of joints, joint work, theoretical lecture, written exam

Twelfth 4 Types of sills, ceilings, and floors and the loads placed on them. Works on sills, ceilings, and floors. A theoretical lecture. A written exam.

Thirteenth 4 Details of moisture-preventing layers, moisture insulation, theoretical lecture, written exam

Fourteenth 4 Details and types of stairs, means of moving between levels, theoretical lecture, written exam

Fifteenth 4 Types and materials of terminations, work on terminations, theoretical lecture, written exam

11. Infrastructure

1- Required textbooks 1. Zuhair Sako and Artin Levon, “Building Construction”

2- Main references (sources)

Recommended books and references (scientific journals, reports,....) Edward Allen and Joseph Iano “Fundamentals of Building Construction”

B - Electronic references, Internet sites, and reliable electronic sites.

Library locations in some international universities.

12. Course development plan

Course description form

Course description

Introducing solutions to advanced mathematical problems facing the student when studying various engineering topics and using engineering analysis methods. It includes an introduction to ordinary differential equations of the first and higher order, partial differential equations, how to solve them, and their various engineering applications, and an introduction to the Fourier series and its applications.

1. The educational institution, University of Maysan

2. Scientific Department/Center, Civil Engineering Department

3. Name/code of the engineering analysis course

4. Available forms of attendance are daily

5. Semester/year, first semester/third stage

6. The total number of study hours is 60 hours

7. The date this description was prepared is January 2025

8. Course objectives

Learn about the following vocabulary:

1- Ordinary differential equations of the first degree.

2- Engineering applications of first-order differential equations.

3- A set of simultaneous ordinary differential equations.

4- Ordinary differential equations of the second and higher degree with fixed and variable coefficients.

5- Fourier series.

6- Partial differential equations.

9. Course outcomes and teaching, learning and evaluation methods

A- Cognitive objectives

A1- Preparing applied engineers in the field of civil engineering who are distinguished by a high level of knowledge and analytical creativity, consistent with the sober standards adopted internationally in ensuring the quality and academic accreditation of 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 recognize various numerical methods.

A4- The ability to build a mathematical model to represent various engineering operations.

B - The skills objectives of the course.

B1- The ability to analyze and discuss.

B2- Brainstorming by encouraging students to produce a large number of ideas about an issue or problem raised during the lecture.

B3- Cooperative learning by working collectively.

B4- Competitive learning by creating an atmosphere of competition among peers.

Teaching and learning methods

• Theoretical lectures, discussion and dialogue, brainstorming, examples and problems used to achieve the goals.

Evaluation methods

• Interaction within the lecture.

• Homework and reports.

• Short tests (Quizzes).

• Semester and final exams.

C- Emotional and value goals.

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

C2- Response: Monitoring the extent of the student's interaction with the material displayed on the screen.

C3- Interest: Following up on the interest of the student who interacted most with the presented material, by increasing this interaction by requesting other programs and applications to display it.

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

C5- Forming valuable behavior: meaning that the student reaches the top of the emotional ladder and has a stable level in the lesson and does not become lazy or fidgety.

Teaching and learning methods

• The usual theoretical presentation method using a whiteboard and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• The theoretical presentation method using the (data show) device and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• Laboratory presentation method using special devices to measure different properties of the material under experiment.

Evaluation methods

• Direct questions (how and why) of the topic during the theoretical and practical lecture.

• Sudden exams during the theoretical and practical lecture.

• Quarterly exams for the theoretical and practical aspects.

• Final exams for the theoretical and practical aspects.

D - Transferable general and qualifying skills (other skills related to employability and personal development).

D1- Developing the student's ability to perform assignments and submit them on time.

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

D3- Developing the student's ability to dialogue and discuss.

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

10. Course structure

Week Hours Required learning outcomes Name of unit/or subject Teaching method Evaluation method

The first 4: Knowing the types and classifications of equations

Ordinary differential equations and types of solutions. An introduction to theoretical differential equations. Questions, discussion, and a short exam.

Second 4: Knowledge of equations with separable variables, homogeneous equations, and differential equations

Ordinary first class - 1 theoretical questions, discussion and a short exam

Third 4: Knowledge of complete equations and differential equations

Ordinary first class - 2 theoretical questions, discussion and a short exam

Fourth 4: Knowledge of linear equations, Bernoulli's equations, and differential equations

Ordinary first class - 3 theoretical questions, discussion and a short exam

Fifth 4: Application of perpendicular paths and suspended wires, applications to differential equations

Ordinary first class - 1 theoretical questions, discussion and a short exam

Sixth 4 Application of flow through openings, movement of bodies, and general applications Applications to differential equations

Ordinary first class - 2 theoretical questions, discussion and a short exam

Seventh 4: Knowing homogeneous equations with constant coefficients and differential equations

Ordinary higher grades - 1 theoretical questions, discussion and a short exam

Eighth 4 Knowledge of inhomogeneous equations with constant coefficients and differential equations

Ordinary higher grades - 2 theoretical questions, discussion and a short exam

Ninth 4: Knowledge of equations with variable coefficients, differential equations

Ordinary higher grades - 3 theoretical questions, discussion and a short exam

Tenth: 4 Application of the curvature of beams and the buckling of columns. Applications to differential equations

Ordinary higher grades - 1 theoretical questions, discussion and a short exam

Eleventh 4 Application of curvature of beams and columns. Applications to differential equations

Ordinary higher grades - 2 theoretical questions, discussion and a short exam

Twelfth 4 Application of vibration, applications to differential equations

Ordinary higher grades - 3 theoretical questions, discussion and a short exam

Thirteenth 4 Knowledge of Fourier series Fourier series theoretical questions, discussion and a short exam

Fourteenth 4 Knowing the types and solutions of partial differential equations Theoretical partial differential equations Questions, discussion and a short exam

Fifteenth 4 Knowing and solving matrices and determinants in different ways Matrices and determinants theoretical questions, discussion and a short exam

11. Infrastructure

1- Required prescribed books

2- Main references (sources) ERWIN KREYSZIG, ADVANCED

ENGINEERING

MATHEMATICS, NINTH EDITION, JOHN WILEY & SONS, INC., 2006.

Recommended books and references (scientific journals, reports,...)

B - Electronic references, Internet sites, and reliable electronic sites.

Library locations in some international universities.

12. Development plan Course

Follow the vocabulary of similar courses in prestigious international universities

Course description form

Course description

The model description provides a brief description of the main features of the course and the academic outcomes that the model student is expected to achieve if he takes advantage of the learning opportunities available for the course. Compare with the program description.

1. The educational institution, University of Maysan

2. Scientific Department/Center, Civil Engineering Department

3. Course name/code: Construction Theory-1

4. Available forms of attendance: physical or electronic

5. Semester/year, first semester/third stage

6. The total number of study hours is 60 hours

7. The date this description was prepared is January 2025

8. Course objectives

The course aims to present the basic methods in analyzing definite structures statically as an introduction to the analysis of indeterminate structures and structural design decisions.

9. Course outcomes and teaching, learning and evaluation methods

A- Cognitive objectives

A1- Classification of structures and a review of the concept of balance of structures under the influence of forces.

A2- Analysis of internal forces and moments generated in lintels and planar structures under the influence of force and moment systems and analysis of forces in lintel members.

A3- Drawing influence diagrams for lintels and ramps and calculating the maximum values of internal reactions as a result of moving loads.

A4- Learn approximate analysis methods for existing structures and parameters and apply the engineering methods used in calculating the inclinations and deflections of statically determined sills.

B - The skills objectives of the course.

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

B2 - Using basic knowledge to research new technologies.

B3 - Deriving and evaluating the information necessary to apply engineering analysis methods to unfamiliar problems.

Teaching and learning methods

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

Evaluation methods

• Interaction within the lecture.

• Homework and reports.

• Short tests (Quizzes).

• Semester and final exams.

C- Emotional and value goals.

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

C2- Response: Monitoring the extent of the student's interaction with the material displayed on the screen.

C3- Interest: Following up on the interest of the student who interacted most with the presented material, by increasing this interaction by requesting other programs and applications to display it.

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

C5- Forming valuable behavior: meaning that the student reaches the top of the emotional ladder and has a stable level in the lesson and does not become lazy or fidgety.

Teaching and learning methods

• The usual theoretical presentation method using a whiteboard and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• The theoretical presentation method using the (data show) device and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• Laboratory presentation method using special devices to measure different properties of the material under experiment.

Evaluation methods

• Direct questions (how and why) of the topic during the theoretical and practical lecture.

• Sudden exams during the theoretical and practical lecture.

• Quarterly exams for the theoretical and practical aspects.

• Final exams for the theoretical and practical aspects.

D - Transferable general and qualifying skills (other skills related to employability and personal development).

D1- Developing the student’s ability to perform assignments and submit them on time.

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

D3- Developing the student’s ability to dialogue and discuss.

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

10. Course structure

Week Hours Required learning outcomes Name of unit/or subject Teaching method Evaluation method

The first 4 Classification of structures and review of eqilibrium Introduction, theoretical lecture, written exam

The second 4 Review of bending moment and shear force diagrams in beams Internal loading developed in structural members Theoretical lecture Written exam

Third 4 Bending moment and shear force diagrams in frames Internal loading developed in structural members Theoretical lecture Written exam

Fourth 4 Bending moment and shear force diagrams in frames Internal loading developed in structural members Theoretical lecture Written exam

Fifth 4 Review of truss analysis Analysis of statically determinate trusses Theoretical lecture Written exam

Sixth 4 Introduction to concept of influence lines Influence lines for statically determinate structures Theoretical lecture Written exam

Seventh 4 Applications on influence lines for beams Influence lines for statically determinating structures Theoretical lecture Written exam

Eighth 4 Applications on influence lines for trusses Influence lines for statically determinate structures Theoretical lecture Written exam

Ninth 4 Applications on influence lines for trusses Influence lines for statically determinate structures Theoretical lecture Written exam

Tenth 4 Determination of maximum reaction for series of moving loads Influence lines for statically determinate structures, theoretical lecture, written exam

Eleventh 4 Approximate method for truss analysis Approximate methods of analysis of structures theoretical lecture written exam

Twelfth 4 Portal method Approximate methods of analysis of structures, theoretical lecture, written exam

Thirteenth 4 Double-integration method Deflections Theoretical lecture Written exam

Fourteenth 4 Singularity function method Deflections Theoretical lecture Written exam

Fifteenth 4 Moment-area method Deflections Theoretical lecture Written exam

11. Infrastructure

1- Required textbooks 1.Elementary Theory of Structures, Yan-Yu Hseih, Prentice Hall.

2. Structural Analysis, R.C. Hibbeler, Prentice Hall.

2- Main references (sources)

Recommended books and references (scientific journals, reports,...) and reliable websites.

Library locations in some international universities.

B - Electronic references, Internet sites

12. Course development plan

Course description form

Course description

The model description provides a brief description of the main features of the course and the academic outcomes that the model student is expected to achieve if he takes advantage of the learning opportunities available for the course. Compare with the program description.

1. The educational institution, University of Maysan

2. Scientific Department/Center, Civil Engineering Department

3. Name/code of the course Soil Mechanics I

4. Available forms of attendance: physical or electronic

5. Semester/year, first semester/third stage

6. The total number of study hours is 45 theoretical hours + 30 practical hours

7. The date this description was prepared is January 2025

8. Course objectives

The course aims to present the characteristics of the soil used in civil engineering works and how to deal with different types of soil as a construction material and support medium for the foundations of buildings.

9. Course outcomes and teaching, learning and evaluation methods

A- Cognitive objectives

A1- Identify the main characteristics of soil.

A2- Identify the weight and volume relationships between different soil properties.

A3- Learn how to classify soils.

A4- Identify the methods used to compact the soil, the calculations for this process, and learn about the permeability characteristic, the movement of water within the soil, and the stresses resulting from this process.

B - The skills objectives of the course.

B1 - Applying mathematical derivation methods for the purpose of finding relationships between soil properties.

B2 - Evaluation of the soil according to its physical properties.

B3 - Mastering laboratory methods for soil examination.

Teaching and learning methods

• Scientific and research skills are developed through teaching and learning activities. Analytical and problem-solving skills are developed further through a set of problems prepared by lecturers and all submitted work is evaluated and responded to. All theoretical and practical lectures were prepared electronically and uploaded to social media platforms to be accessible to students when needed.

Evaluation methods

• Interaction within the lecture.

• Homework and reports.

• Short tests (Quizzes).

• Semester and final exams.

C- Emotional and value goals.

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

C2- Response: Monitoring the extent of the student's interaction with the material displayed on the screen.

C3- Interest: Following up on the interest of the student who interacted most with the presented material, by increasing this interaction by requesting other programs and applications to display it.

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

C5- Forming valuable behavior: meaning that the student reaches the top of the emotional ladder and has a stable level in the lesson and does not become lazy or fidgety.

Teaching and learning methods

• The usual theoretical presentation method using a whiteboard and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• The theoretical presentation method using the (data show) device and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• Laboratory presentation method using special devices to measure different properties of the material under experiment.

Evaluation methods

• Direct questions (how and why) of the topic during the theoretical and practical lecture.

• Sudden exams during the theoretical and practical lecture.

• Quarterly exams for the theoretical and practical aspects.

• Final exams for the theoretical and practical aspects.

D - Transferable general and qualifying skills (other skills related to employability and personal development).

D1- Developing the student’s ability to perform assignments and submit them on time.

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

D3- Developing the student’s ability to dialogue and discuss.

D4- Developing the student’s ability to deal with modern technology, especially the Internet.

10. Course structure

Week Hours Required learning outcomes Name of unit/or subject Teaching method Evaluation method

The first 3: Introduction soil formation Basic Characteristics of Soils, theoretical lecture, written exam

Second 3 Derivation of Weight-Volume Relationships Weight-Volume Relationships Theoretical lecture Written exam

Third 3 Application of Weight-Volume Relationships Weight-Volume Relationships Theoretical lecture Written exam

Fourth 3 Introduction to Plasticity and Structure of Soil Plasticity and Structure of Soil A theoretical lecture Written exam

Fifth 3 Methods used to find Plasticity characteristics of soil Plasticity and Structure of Soil Theoretical lecture Written exam

Sixth: 3 Methods used for the mechanical analysis of soil Classification of Soil, theoretical lecture, written exam

Seventh 3 Application to the modified soil classification system Classification of Soil A theoretical lecture and a written exam

Eighth 3 General principles of Soil Compaction, theoretical lecture, written exam

Ninth 3 Determination of field unit weight and equipments used for compaction Soil Compaction Theoretical lecture Written exam

Tenth 3 Hydraulic conductivity Permeability, theoretical lecture, written exam

Eleventh 3 Methods used to determine Hydraulic conductivity Permeability, theoretical lecture, written exam

Twelfth 3 Flow of water in soil Permeability, theoretical lecture, written exam

Thirteenth 3 Flow nets Seepage theoretical lecture written exam

Fourteenth 3 Application of Flow nets Seepage Theoretical lecture Written exam

Fifteenth 3 Seepage through an Earth Dam Seepage theoretical lecture written exam

11. Infrastructure

1- Required textbooks - Principles of Geotechnical Engineering (By: Braja M. Das, 7th Ed.)

2- Main references (sources) -Soil Mechanics (By: R.F. Craig, 4th Ed. or higher)

-Soil Mechanics (By: T.W. Lambe and R.V. Whitman)

Recommended books and references (scientific journals, reports,...) and reliable websites.

Library locations in some international universities.

B - Electronic references, Internet sites

12. Course development plan

Course description form

Course description

The model description provides a brief description of the main features of the course and the academic outcomes that the model student is expected to achieve if he takes advantage of the learning opportunities available for the course. Compare with the program description.

1. The educational institution, University of Maysan

2. Scientific Department/Center, Civil Engineering Department

3. Course name/code Reinforced Concrete Designs-1

4. Available forms of attendance: physical or electronic

5. Semester/year, first semester/third stage

6. The total number of study hours is 75 hours

7. The date this description was prepared is January 2025

8. Course objectives

The course aims to present the basic methods in the analysis and design of reinforced concrete structures.

9. Course outcomes and teaching, learning and evaluation methods

A- Cognitive objectives

A1- Applying basic knowledge in understanding the examinations of the basic materials involved in the formation of armed guards

A2- Clarifying the laboratory examination methods approved by international codes.

A3- Applying analysis methods related to thresholds, including the method of operating stresses, in analyzing and designing thresholds.

A4- Methods of analysis and design of beams with rectangular and special sections, and methods of designing beams for shear

As well as the analysis and design of one-way thresholds.

B - The skills objectives of the course.

B1 - Applying mathematical methods approved in international codes for the purposes of analysis and design.

B2 - Using basic knowledge to research new technologies.

B3 - Evaluating the information necessary to apply ancient and modern design and analysis methods and comparing them.

Teaching and learning methods

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

Evaluation methods

• Interaction within the lecture.

• Homework and reports.

• Short tests (Quizzes).

• Semester and final exams.

C- Emotional and value goals.

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

C2- Response: Monitoring the extent of the student's interaction with the material displayed on the screen.

C3- Interest: Following up on the interest of the student who interacted most with the presented material, by increasing this interaction by requesting other programs and applications to display it.

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

C5- Forming valuable behavior: meaning that the student reaches the top of the emotional ladder and has a stable level in the lesson and does not become lazy or fidgety.

Teaching and learning methods

• The usual theoretical presentation method using a whiteboard and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• The theoretical presentation method using the (data show) device and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• Laboratory presentation method using special devices to measure different properties of the material under experiment.

Evaluation methods

• Direct questions (how and why) of the topic during the theoretical and practical lecture.

• Sudden exams during the theoretical and practical lecture.

• Quarterly exams for the theoretical and practical aspects.

• Final exams for the theoretical and practical aspects.

D - Transferable general and qualifying skills (other skills related to employability and personal development).

D1- Developing the student's ability to perform assignments and submit them on time.

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

D3- Developing the student's ability to dialogue and discuss.

D4- Developing the student's ability to deal with technological means Modern technology, especially the Internet.

10. Course structure

Week Hours Required learning outcomes Name of unit/or subject Teaching method Evaluation method

The first 5: Mixing, Placing, Compacting and Curing of concrete Introduction, theoretical lecture, written exam

Second 5 Concrete Behavior in Compression and Tension. And Quality Control Introduction, theoretical lecture, written exam

Third 5 Reinforcing Steel for Concrete. And Introduction, theoretical lecture and written exam

Fourth 5 Design Codes and Specifications.

Loads and Safety Provisions. Introduction: Theoretical lecture and written exam

Fifth 5 Behavior of R.C beam under loading and working stress method: Working Stress Method Theoretical lecture Written exam

Sixth 5 Introduction to Working Stress Method. And applications of the Working Stress Method. Working Stress Method, theoretical lecture, written exam

Seventh 5 Introduction and Behavior of Reinforced Concrete Beam under Bending. Flexural Beam Analysis And Design, theoretical lecture, written exam

Eighth 5 Design of Tension Reinforced Rectangular Beams. Flexural Beam Analysis And Design, theoretical lecture, written exam

IX 5 Practical Consideration in the Design of Beams. Flexural Beam Analysis And Design, theoretical lecture, written exam

Tenth 5 Rectangular Sections With Tension and Compression Reinforcement. Flexural Beam Analysis And Design, theoretical lecture, written exam

Eleventh 5 Flexural Analysis and Design of T-beams. Flexural Analysis and Design of T-beams. Theoretical lecture and written exam

XII 5 Shear and Diagonal Tension in Beams. Shear and Diagonal Tension in Beams. Theoretical lecture and written exam

Thirteenth 5 Shear Strength of Concrete without Reinforcement. And Reinforced Concrete Beams With Web Reinforcements. Shear and Diagonal Tension in Beams. Theoretical lecture and written exam

Fourteenth 5 Types of Slabs. And Analysis and Design of One-Way Slab. Design and analysis of slabs. Theoretical lecture and written exam

Fifteenth 5 Temperature and Shrinkage Reinforcement. Design and analysis of slabs. Theoretical lecture and written exam

11. Infrastructure

1- The required textbooks.

2- Main 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. Nelson, David Derwin and Charles W. Dolan

5- Reinforced concrete design, 6th Edition 2009 By Edward G. Nawy

6- ACI Code 318- 2019

Recommended books and references (scientific journals, reports,...) and reliable websites.

Library locations in some international universities.

B - Electronic references, Internet sites

12. Course development plan

Course description form

Course description

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

1. The educational institution, University of Maysan

2. Scientific Department/Center, Civil Engineering Department

3. Name/code of the course Irrigation Engineering

4. Available forms of attendance: physical or electronic

5. Semester/year, first semester/third stage

6. The total number of study hours is 45 hours

7. The date this description was prepared is January 2025

8. Course objectives

9. Course outcomes and teaching, learning and evaluation methods

A- Cognitive objectives

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

A2- Gaining the ability to address water waste problems through designing irrigation systems.

A3- Acquiring basic skills in managing irrigation systems.

A4- Gaining experience in designing the irrigation system and its suitability depending on the surrounding conditions, and gaining experience in knowing the difference between the old and modern irrigation system, as well as managing the irrigation system optimally.

B - The skills objectives of the course.

B1 - The ability to design irrigation systems in different ways.

B2 - The ability to think about addressing water waste problems and finding ways to reduce them.

B3 - Writing scientific reports and reading charts and tables.

Teaching and learning methods

- Readings, self-learning, seminars.
- Exercises and activities in the lecture.
- Homework.
- Directing students to some websites to benefit and develop capabilities.

• Conducting discussion circles to explain and analyze a specific issue and find solutions to it.

Evaluation methods

• Interaction within the lecture.

• Homework and reports.

• Short tests (Quizzes).

• Semester and final exams.

C- Emotional and value goals.

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

C2- Response: Monitoring the extent of the reaction Student with the material displayed on the screen.

C3- Interest: Following up on the interest of the student who interacted most with the presented material, by increasing this interaction by requesting other programs and applications to display it.

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

C5- Forming valuable behavior: meaning that the student reaches the top of the emotional ladder and has a stable level in the lesson and does not become lazy or fidgety.

Teaching and learning methods

• The usual theoretical presentation method using a whiteboard and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• The theoretical presentation method using the (data show) device and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• Laboratory presentation method using special devices to measure different properties of the material under experiment.

Evaluation methods

• Direct questions (how and why) of the topic during the theoretical and practical lecture.

• Sudden exams during the theoretical and practical lecture.

• Quarterly exams for the theoretical and practical aspects.

• Final exams for the theoretical and practical aspects.

D - Transferable general and qualifying skills (other skills related to employability and personal development).

D1- Developing the student's ability to perform assignments and submit them on time.

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

D3- Developing the student's ability to dialogue and discuss.

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

10. Course structure

Week Hours Required learning outcomes Name of unit/or subject Teaching method Evaluation method

The first 3: Irrigation, benefits of irrigation, irrigation networks, theoretical introduction, questions and discussion

The second: 3 types of irrigation methods, evaluating irrigation water sources, a theoretical introduction + tense, questions, discussion, and advice.

Third 3 Calculating the volume of water in the soil, methods for calculating water consumption, theoretical introduction, questions and discussion

Fourth 3: Efficiency, adequacy, and consistency of irrigation, theoretical introduction + tense, questions, discussion, and questions

Fifth: 3 methods of designing ground grading. Designing ground grading, theoretical + tensional questions and discussion

And cuz

Sixth 3: The mechanism of the surface irrigation process, the concept of water budgeting, surface irrigation, theoretical + tense, questions and discussion

And cuz

Seventh: 3 design assumptions, design flow rate, length and width of strip irrigation, theoretical questions and discussion

Eighth 3 Method of calculating percolation, design determinants, methods of controlling surface runoff water, irrigation with irrigation, theory + tension, questions, discussion, and advice.

Ninth: 3 Design equations, design determinants of basin irrigation, theoretical + tensional questions and discussion

Tenth 3: Sprinkler irrigation system plan, the effect of wind direction on the sprinkler irrigation plan, theoretical questions and discussion

Eleventh 3 Sprinkler extruder hydraulics, distribution uniformity coefficient, spray mist losses, sprinkler irrigation, theory + tension, questions and discussion

Twelfth 3 Number of pipe moves, hydraulic foundations of flow, flow in manifolds, sprinkler irrigation, theoretical + tensional questions and discussion

Thirteenth 3 Calculating the pressure charge, designing a sprinkler irrigation system, sprinkler irrigation, theoretical questions, discussion, and a quiz

Fourteenth 3 Benefits of drip irrigation, basic parts of the drip system Drip irrigation, theoretical questions and discussion

Fifteenth 3 Wet area, design of a drip system, drip irrigation, theoretical + tense, questions, discussion, and advice

11. Infrastructure

1- Required textbooks for field irrigation systems engineering

2- Main references (sources): Arab and foreign irrigation engineering books

Recommended books and references (scientific journals, reports,...)

B - Electronic references, Internet sites, and reliable electronic sites.

Library locations in some international universities.

12. Course development plan

Course description form

Course description

The model description provides a brief description of the main features of the course and the academic outcomes that the model student is expected to achieve if he takes advantage of the learning opportunities available for the course. Compare with the program description.

1. The educational institution, University of Maysan
2. Scientific Department/Center, Civil Engineering Department
3. Name/code of the engineering management course
4. Available forms of attendance: physical or electronic
5. Semester/year, first semester/third stage
6. The total number of study hours is 30 hours
7. The date this description was prepared is January 2025
8. Course objectives

The course aims to present the basics of project management with a special focus on the planning phase. This is to pave the way for the student to learn more aspects about project management in the second semester.

9. Course outcomes and teaching, learning and evaluation methods

A- Cognitive objectives

A1- Introduction to project management, the need for project management in the construction industry, organizational impacts and project life cycle, project management processes and integration management.

A2- Managing the scope, time and cost of projects.

A3- Resource and quality management

B - The skills objectives of the course.

B1 - Schedule management plan, identifying events and their sequence, estimating event resources and durations, and leveling resources

B2 - Apply 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. Analytical and problem-solving skills are developed further by a set of problems prepared by lecturers through small study groups and you are assessed and responded to. All submitted works.

Evaluation methods

• Interaction within the lecture.

• Homework and reports.

• Short tests (Quizzes).

• Semester and final exams.

C- Emotional and value goals.

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

C2- Response: Monitoring the extent of the student's interaction with the material displayed on the screen.

C3- Interest: Following up on the interest of the student who interacted most with the presented material, by increasing this interaction by requesting other programs and applications to display it.

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

C5- Forming valuable behavior: meaning that the student reaches the top of the emotional ladder and has a stable level in the lesson and does not become lazy or fidgety.

Teaching and learning methods

• The usual theoretical presentation method using a whiteboard and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• The theoretical presentation method using the (data show) device and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• Laboratory presentation method using special devices to measure different properties of the material under experiment.

Evaluation methods

• Direct questions (how and why) of the topic during the theoretical and practical lecture.

• Sudden exams during the theoretical and practical lecture.

• Quarterly exams for the theoretical and practical aspects.

• Final exams for the theoretical and practical aspects.

D - Transferable general and qualifying skills (other skills related to employability and personal development).

D1- Developing the student's ability to perform assignments and submit them on time.

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

D3- Developing the student's ability to dialogue and discuss.

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

10. Course structure

Week Hours Required learning outcomes Name of unit/or subject Teaching method Evaluation method

The first 2 Introduction to project management Introduction to project management A theoretical lecture and a written exam

Second 2 Project scope management Collect requirement, Define Scope, Create WBS, Validate Scope and Control Scope Theoretical lecture Written exam

Third 2 Project Time management Define and sequence activities, theoretical lecture and written exam

Fourth 2 Project Time management Estimate Activity Resources and Duration Theoretical lecture Written exam

Fifth 2 Project Time management Bar Chart Method Theoretical lecture Written exam

Sixth 2 Project Time management AOA Method Theoretical lecture Written exam

Seventh 2 Project Time management AON Methods Theoretical lecture Written exam

Eighth 2 Project Time management CPM Calculation Theoretical lecture Written exam

Ninth 2 Project Time management PERT Method Theoretical lecture Written exam

Tenth 2 Project Time management LOB method Theoretical lecture Written exam

Eleventh 2 Project Time management LOB method Theoretical lecture Written exam

Twelfth 2 Resource Management Resource Smoothing Method Theoretical lecture Written exam

Thirteenth 2 Resource Management Resource Levelling Method Theoretical lecture Written exam

Fourteenth 2 Project Quality Management Plan Quality, Perform Quality Assurance and Control Quality, theoretical lecture, written exam

Fifteenth 2 Communication Management Plan, Manage and Control Communications, theoretical lecture, written exam

11. Infrastructure

1- Required textbooks 1. A Guide to the project management body of knowledge - PMI.

2. Construction Project Management and Professional Relations: Ihsan Al-Attar

2- Main references (sources)

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, Internet sites, sites with a good reputation and scientific sobriety. Such as PMI.org or apm.org.uk

Library locations in some international universities.

12. Course development plan

Course description form

Course description

The model description provides a brief description of the main features of the course and the academic outcomes that the model student is expected to achieve if he takes advantage of the learning opportunities available for the course. Compare with the program description.

1. The educational institution, University of Maysan

2. Scientific Department/Center, Civil Engineering Department

3. Name/code of the traffic engineering course

4. Available forms of attendance: physical or electronic

5. Semester/year, first semester/third stage

6. The total number of study hours is 60 hours

7. The date this description was prepared is January 2025

8. Course objectives

The course aims to study means and develop systems that achieve organization, safety and efficiency and determine them during human transport or goods transport in all means of transport by road and railway and in air and sea navigation, through the use of Indian technologies. A variety of means of communication and technology, including traffic signs, traffic lights, traffic symbols and signs, all with the aim of organizing and facilitating traffic, and preserving lives, time and money.

9. Course outcomes and teaching, learning and evaluation methods

A- Cognitive and educational objectives

A1-1Methods of calculating traffic volumes.

A2-A1 Methods of calculating vehicle speed

A3- Design of road elements

A4- Traffic accident analysis

B - The skills objectives of the course.

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

B2 - Using basic knowledge to research new technologies.

B3 - Deriving and evaluating the information necessary to apply engineering analysis methods to unfamiliar problems.

Teaching and learning methods

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

Evaluation methods

• Interaction within the lecture.

• Homework and reports.

• Short tests (Quizzes).

• Semester and final exams.

C- Emotional and value goals.

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

C2-Response: Monitoring the extent of the student's interaction with the material displayed on the screen.

C3- Interest: Following up on the interest of the student who interacted most with the presented material, by increasing this interaction by requesting other programs and applications to display it.

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

C5- Forming valuable behavior: meaning that the student reaches the top of the emotional ladder and has a stable level in the lesson and does not become lazy or fidgety.

Teaching and learning methods

• The usual theoretical presentation method using a whiteboard and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• The theoretical presentation method using the (data show) device and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• Laboratory presentation method using special devices to measure different properties of the material under experiment.

Evaluation methods

• Direct questions (how and why) of the topic during the theoretical and practical lecture.

• Sudden exams during the theoretical and practical lecture.

• Quarterly exams for the theoretical and practical aspects.

• Final exams for the theoretical and practical aspects.

D - Transferable general and qualifying skills (other skills related to employability and personal development).

D1- Developing the student's ability to perform assignments and submit them on time.

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

D3- Developing the student's ability to dialogue and discuss.

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

10. Course structure

Week Hours Required learning outcomes Name of unit/or subject Teaching method Evaluation method

The first 4 Introduction of Traffic engineering, theoretical lecture, written exam

The second 4 The methods of volume counting Volume subdues theoretical lecture written exam

Third 4 The methods of speed counting Speed studies, theoretical lecture, written exam

Fourth 4 The method of capacity design of the roadway Relation ship among speed, volume and density Theoretical lecture Written exam

Fifth 4 Introduction to intersections types intersections A theoretical lecture and a written exam

Sixth 4 Introduction to intersection traffic control Traffic control methods A theoretical lecture and a written exam

Seventh 4 Introduction to intersection traffic control Sign and marking A theoretical lecture and a written exam

Eighth 4 The method of determine delay in traffic signalized traffic signalized analysis, theoretical lecture, written exam

Ninth 4 The method of traffic signalized design traffic signalized design - Webster method A theoretical lecture and a written exam

Tenth 4 Determine the Sight distance Stoping Sight distance A theoretical lecture and a written exam

Eleventh 4 Determine the Sight distance Passing Sight distance A theoretical lecture and a written exam

Twelfth 4 Curves design Horizontal curve design, theoretical lecture, written exam

Thirteenth 4 Curves design Vertical curve design A theoretical lecture and a written exam

Fourteenth 4 The method of parking design Parking study, theoretical lecture, written exam

Fifteenth 4 Analysis of accident Accident study, theoretical lecture, written exam

11. Infrastructure

1- The required textbooks, Principles of Traffic Engineering, Dr. Lamia Abdel Jalil

Traffic Laboratory Manual, Dr. Lamia Abdel Jalil

2- Main references (sources)

Recommended books and references (scientific journals, reports,...) and reliable websites.

Library locations in some international universities.

B - Electronic references, Internet sites

12. Course development plan

It is possible to summarize the curriculum development plan by assigning students to small projects on road networks to apply what they have learned in the theoretical and practical aspects on the ground.

Course description form

Course description

The module description provides a brief description of the main milestones of the course and the academic outcomes that the module student is expected to achieve If he takes advantage of the educational opportunities available to the course. Compare with the program description.

1. The educational institution, University of Maysan

2. Scientific Department/Center, Civil Engineering Department

3. Name/code of the computer applications course

4. Available forms of attendance: physical or electronic

5. Semester/year, first semester/third stage

6. The total number of study hours is 30 hours

7. The date this description was prepared is January 2025

8. Course objectives

The course aims to provide the student with the skills of using ready-made engineering programs to benefit from them in analyzing and designing engineering projects

9. Course outcomes and teaching, learning and evaluation methods

A- Cognitive objectives

A1- Access to engineering programs and their types

A2- Knowing the sources of obtaining programs

A3- Knowledge of the foundations of engineering programs

B - The skills objectives of the course.

B1 - Learn to choose the appropriate program

B2 - Knowledge of providing the information required to be fed to the program

B3 - Know how to open the program and enter information

B4- Learn to conduct analysis and obtain results

Teaching and learning methods

• Scientific and research skills are developed through teaching and learning activities.

• Analytical and problem-solving skills are developed further through a set of problems prepared by lecturers, through small study groups, and all submitted work is evaluated and responded to.

Evaluation methods

• Interaction within the lecture.

• Homework and reports.

• Short tests (Quizzes).

• Semester and final exams.

C- Emotional and value goals.

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

C2- Response: Monitoring the extent of the student's interaction with the material displayed on the screen.

C3- Interest: Following up on the interest of the student who interacted most with the presented material, by increasing this interaction by requesting other programs and applications to display it.

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

C5- Forming valuable behavior: meaning that the student reaches the top of the emotional ladder and has a stable level in the lesson and does not become lazy or fidgety.

Teaching and learning methods

• The usual theoretical presentation method using a whiteboard and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• The theoretical presentation method using the (data show) device and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• Laboratory presentation method using special devices to measure different properties of the material under experiment.

Evaluation methods

• Direct questions (how and why) of the topic during the theoretical and practical lecture.

• Sudden exams during the theoretical and practical lecture.

• Quarterly exams for the theoretical and practical aspects.

• Final exams for the theoretical and practical aspects.

D - Transferable general and qualifying skills (other skills related to employability and personal development).

D1- Developing the student’s ability to perform assignments and submit them on time.

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

D3- Developing the student’s ability to dialogue and discuss.

D4- Developing the student’s ability to deal with modern technology, especially the Internet.

10. Course structure

Week Hours Required learning outcomes Name of unit/or subject Teaching method Evaluation method

The first 2: Introduction to engineering programs, introduction, practical lecture, and practical exam

The second 2, the basics of the IPANT program, the IPANT program, a practical lecture, and a practical exam

Third 2: Learn to draw the components of the water network, enter data, practical lecture, and practical exam

Fourth 2 How to determine the levels of nodes, tanks, and pipe diameters. Properties of network components. Practical lecture. Practical exam

Fifth 2 Entering pump information Pump information Practical lecture Practical exam

Sixth 2: Conducting a network analysis. Water network analysis. Practical lecture. Practical exam

Seventh 2 How to review the results Review the results Practical lecture Practical exam

Eighth 2 How to enter information that changes with time, chronological pattern, practical lecture, practical exam

Ninth 2 How to conduct the analysis and display the results. Analysis and review of the results. Practical lecture. Practical exam

Tenth 2 Definition of the MS-Project program Introduction to the MS-Project program Practical lecture Practical exam

Eleventh 2 Learn to divide the project into sub-activities, deconstructive structure, practical lecture, practical exam

Twelfth 2 Learn to enter the names of the activities and the time for each activity. The activities and time required. Practical lecture. Practical exam

Thirteenth 2 Learn how to link events with temporal relationships, relationships between events, practical lecture, practical exam

Fourteenth 2 Learn the critical path method, critical path, practical lecture, practical exam

Fifteenth 2 Learn to enter resources and organize resources, practical lecture, practical exam

11. Infrastructure

1- Required textbooks: 1. IPANT program guide

2. MS Project Software Guide

2- Main references (sources)

Recommended books and references (scientific journals, reports,...)

B - Electronic references, Internet sites, and reliable electronic sites.

Library locations in some international universities.

12. Course development plan

Course description form

Course description

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

1. The educational institution, University of Maysan

2. Scientific Department/Center, Civil Engineering Department

3. Name/code of the numerical analysis course

4. Available forms of attendance are daily

5. Semester/Year, Second Semester/Third Stage

6. The total number of study hours is 60 hours

7. The date this description was prepared is January 2025

8. Course objectives

Learn about the following vocabulary:

1- Numerical solution of algebraic equations.

2- Taylor series.

3- Derivation and integration using numerical methods.

4- Numerical solution of differential equations.

5- Finding the mathematical model for a group of points.

6- Interpolation and extrapolation.

9. Course outcomes and teaching, learning and evaluation methods

A- Cognitive objectives

A1- Preparing applied engineers in the field of civil engineering who are distinguished by a high level of knowledge and analytical creativity, consistent with the sober standards adopted internationally in ensuring the quality and academic accreditation of 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 recognize various numerical methods.

A4- The ability to build a mathematical model to represent various engineering operations.

B - The skills objectives of the course.

B1- The ability to analyze and discuss.

B2- Brainstorming by encouraging students to produce a large number of ideas about an issue or problem raised during the lecture.

B3- Cooperative learning by working collectively.

B4- Competitive learning by creating an atmosphere of competition among peers.

Teaching and learning methods

• Theoretical lectures, discussion and dialogue, brainstorming, examples and problems used to achieve the goals.

Evaluation methods

• Interaction within the lecture.

• Homework and reports.

• Short tests (Quizzes).

• Semester and final exams.

C- Emotional and value goals.

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

C2- Response: Monitoring the extent of the student's interaction with the material displayed on the screen.

C3- Interest: Following up on the interest of the student who interacted most with the presented material, by increasing this interaction by requesting other programs and applications to display it.

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

C5- Forming valuable behavior: meaning that the student reaches the top of the emotional ladder and has a stable level in the lesson and does not become lazy or fidgety.

Teaching and learning methods

• The usual theoretical presentation method using a whiteboard and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• The theoretical presentation method using the (data show) device and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• Laboratory presentation method using special devices to measure different properties of the material under experiment.

Evaluation methods

• Direct questions (how and why) of the topic during the theoretical and practical lecture.

• Sudden exams during the theoretical and practical lecture.

• Quarterly exams for the theoretical and practical aspects.

• Final exams for the theoretical and practical aspects.

D - Transferable general and qualifying skills (other skills related to employability and personal development).

D1- Developing the student's ability to perform assignments and submit them on time.

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

D3- Developing the student's ability to dialogue and discuss.

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

10. Course structure

Week Hours Required learning outcomes Name of unit/or subject Teaching method Evaluation method

The first 6: Knowing what numerical methods are, the approximate solution, and how to calculate the error in the approximate solution. Introduction to numerical methods, theoretical + practical, questions, discussion, and a short exam.

The second 6: Applying the methods of bisection, fixed point, Newton-Raphson, and modified Newton in solving algebraic equations. Numerical solution of algebraic equations, theoretical + practical, questions, discussion, and a short exam.

Third 6: Solving a set of simultaneous algebraic equations using numerical methods. Numerical solution to a set of algebraic equations: Theoretical + practical. Questions, discussion, and a short exam.

Fourth 6: Applying the Taylor series in approximating functions. Taylor series, theoretical + practical, questions, discussion, and a short exam.

Fifth 6: Performing the differentiation of various functions using numerical methods. Numerical differentiation is theoretical + practical. Questions, discussion, and a short exam.

Sixth: Performing the integration of various functions using numerical methods. Numerical integration, theoretical + practical, questions, discussion, and a short exam.

Seventh: 6 Application of Euler, Range-Kutta, and finite differences methods in solving ordinary differential equations. Numerical solution of ordinary differential equations. Theoretical + practical. Questions, discussion, and a short exam.

Eighth 6: Applying the finite difference method to solving partial differential equations. Numerical solution to partial differential equations. Theoretical + practical. Questions, discussion, and a short exam.

Ninth 6 Finding the appropriate curve for a set of points Finding the appropriate curve Theoretical + practical Questions, discussion and a short exam

Tenth 6: Performing interpolation and extrapolation in approximating functions. Interpolation and extrapolation, theoretical + practical, questions, discussion, and a short exam.

11. Infrastructure

1- AFor required course books

2- Main references (sources) ERWIN KREYSZIG, ADVANCED

ENGINEERING

MATHEMATICS, NINTH EDITION, JOHN WILEY & SONS, INC., 2006.

Recommended books and references (scientific journals, reports,...)

B - Electronic references, Internet sites, and reliable electronic sites.

Library locations in some international universities.

12. Course development plan

Follow the vocabulary of similar courses in prestigious international universities

Course description form

Course description

The model description provides a brief description of the main features of the course and the academic outcomes that the model student is expected to achieve if he takes advantage of the learning opportunities available for the course. Compare with the program description.

1. The educational institution, University of Maysan

2. Scientific Department/Center, Civil Engineering Department

3. Name/code of the course Construction Theory-2

4. Available forms of attendance: physical or electronic

5. Semester/Year, Second Semester/Third Stage

6. The total number of study hours is 60 hours

7. The date this description was prepared is January 2025

8. Course objectives

The course aims to expand on the concepts recognized in Structural Theory-1, where the analysis of statically indeterminate structures is reviewed by imposing conditions on the form of deformation on the balance of the structure. The methods used include the two basic trends in analysis methods, which are: a group of force methods (as a method Compatible deformations) and a group of displacement methods (such as the slope-fall method and the moment distribution method).

9. Course outcomes and teaching, learning and evaluation methods

A- Cognitive objectives

A-1 Knowing the concept of a group of force methods in analyzing statically indeterminate structures, as well as knowing the method of compatible deformations and its application to statically indeterminate thresholds.

A-2 Knowing the concept of a group of displacement methods in analyzing statically indeterminate structures and knowing the slope-fall method and its application to lintels and indefinite structures.

A-3 Know the method of distributing moments and applying them to lintels and undefined structures.

A-4 Know the concept of strain energy, know Castellano’s theory and apply it in the analysis of cusps and indefinite structures.

B - The skills objectives of the course.

B-1 The possibility of analyzing indeterminate structures statically and evaluating the components of reactions.

B-2 The possibility of drawing shear force and bending moment diagrams for structures that are not statically determined.

B-3 The possibility of evaluating the material at points on the origin.

Teaching and learning methods

1- Explanation and clarification through lectures.

2- Displaying scientific material using display devices: plasma displays and smart boards.

3- Self-learning through homework and small projects during the lecture.

Evaluation methods

- Interaction within the lecture.
- Homework and reports.
- Short tests (Quizzes).
- Semester and final exams.

C- Emotional and value goals.

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

C2- Response: Monitoring the extent of the student's interaction with the material displayed on the screen.

C3- Interest: Following up on the interest of the student who interacted most with the presented material, by increasing this interaction by requesting other programs and applications to display it.

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

C5- Forming valuable behavior: meaning that the student reaches the top of the emotional ladder and has a stable level in the lesson and does not become lazy or fidgety.

Teaching and learning methods

• The usual theoretical presentation method using a whiteboard and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• The theoretical presentation method using the (data show) device and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• Laboratory presentation method using special devices to measure different properties of the material under experiment.

Evaluation methods

• Direct questions (how and why) of the topic during the theoretical and practical lecture.

• Sudden exams during the theoretical and practical lecture.

• Quarterly exams for the theoretical and practical aspects.

• Final exams for the theoretical and practical aspects.

D - Transferable general and qualifying skills (other skills related to employability and personal development).

D1- Developing the student’s ability to perform assignments and submit them on time.

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

D3- Developing the student’s ability to dialogue and discuss.

D4- Developing the student’s ability to deal with modern technology, especially the Internet.

10. Course structure

Week Hours Required learning outcomes Name of unit/or subject Teaching method Evaluation method

The first 4 Introduction to force methods Force Methods

1- Explanation and clarification through lectures.

2- Displaying scientific material using display devices: plasma displays and smart boards.

3 - Self-learning through homework and small projects during the lecture - Interaction during the lecture.

-Homework and reports.

-Short tests

-Semester and final exams.

The second 4 Introduction to method of consistent deformations Method of Consistent Deformations

1- Explanation and clarification through lectures.

2- Displaying scientific material using display devices: plasma displays and smart boards.

3 - Self-learning through homework and small projects during the lecture - Interaction during the lecture.

-Homework and reports.

-Short tests

-Semester and final exams.

III 4 Applications to indeterminate beams Method of Consistent Deformations

1- Explanation and clarification through lectures.

2- Displaying scientific material using display devices: plasma displays and smart boards.

3 - Self-learning through homework and small projects during the lecture - Interaction during the lecture.

-Homework assignments and reports.

-Short tests

-Semester and final exams.

Fourth 4 Applications to indeterminate beams Method of Consistent Deformations

1- Explanation and clarification through lectures.

2- Displaying scientific material using display devices: plasma displays and smart boards.

3 - Self-learning through homework and small projects during the lecture - Interaction during the lecture.

-Homework assignments and reports.

-Short tests

-Semester and final exams.

Fifth 4 Introduction to displacement methods and derivation of slope-deflection method Displacement Methods: Slope-Deflection

1- Explanation and clarification through lectures.

2- Displaying scientific material using display devices: plasma displays and smart boards.

3 - Self-learning through homework and small projects during the lecture - Interaction during the lecture.

-Homework assignments and reports.

-Short tests

-Semester and final exams.

Sixth 4 Application of slope-deflection method to beams and non-sway frames Displacement Methods: Slope-Deflection

1- Explanation and clarification through lectures.

2- Displaying scientific material using display devices: plasma displays and smart boards.

3 - Self-learning through homework and small projects during the lecture - Interaction during the lecture.

-Homework assignments and reports.

-Short tests

-Semester and final exams.

Seventh 4 Introduction to concepts of stiffness and carry-over Displacement Methods: Moment Distribution

1- Explanation and clarification through lectures.

2- Displaying scientific material using display devices: plasma displays and smart boards.

3 - Self-learning through homework and small projects during the lecture - Interaction during the lecture.

-Homework assignments and reports.

-Short tests

-Semester and final exams.

Eighth 4 Modified stiffness and application to beams Displacement Methods: Moment Distribution

1- Explanation and clarification through lectures.

2- Displaying scientific material using display devices: plasma displays and smart boards.

3 - Self-learning through homework and small projects during the lecture - Interaction during the lecture.

-Homework assignments and reports.

-Short tests

-Semester and final exams.

Ninth 4 Application with support settlement Displacement Methods: Moment Distribution

1- Explanation and clarification through lectures.

2- Displaying scientific material using display devices: plasma displays and smart boards.

3 - Self-learning through homework and small projects during the lecture - Interaction during the lecture.

-Homework assignments and reports.

-Short tests

-Semester and final exams.

Tenth 4 Application to non-sway frames Displacement Methods: Moment Distribution

1- Explanation and clarification through lectures.

2- Displaying scientific material using display devices: plasma displays and smart boards.

3 - Self-learning through homework and small projects during the lecture - Interaction during the lecture.

-Homework assignments and reports.

-Short tests

-Semester and final exams.

Eleventh 4 Application to non-sway frames Displacement Methods: Moment Distribution

1- Explanation and clarification through lectures.

2- Displaying scientific material using display devices: plasma displays and smart boards.

3 - Self-learning through homework and small projects during the lecture - Interaction during the lecture.

-Homework assignments and reports.

-Short tests

-Semester and final exams.

Twelfth 4 Introduction to strain energy in elastic structures Energy Methods

1- Explanation and clarification through lectures.

2- Displaying scientific material using display devices: plasma displays and smart boards.

3 - Self-learning through homework and small projects during the lecture - Interaction during the lecture.

-Homework assignments and reports.

-Short tests

-Semester and final exams.

Thirteenth 4 Derivation and application of Castigliano's theorem Energy Methods

1- Explanation and clarification through lectures.

2- Displaying scientific material using display devices: plasma displays and smart boards.

3 - Self-learning through homework and small projects during the lecture - Interaction during the lecture.

-Homework assignments and reports.

-Short tests

-Semester and final exams.

Fourteenth 4 Deflections using energy methods Energy Methods

1- Explanation and clarification through lectures.

2- Displaying scientific material using display devices: plasma displays and smart boards.

3 - Self-learning through homework and small projects during the lecture - Interaction during the lecture.

-Homework assignments and reports.

-Short tests

-Semester and final exams.

Fifth nestR 4 Analysis of indeterminate beams and frames using energy methods Energy Methods

1- Explanation and clarification through lectures.

2- Displaying scientific material using display devices: plasma displays and smart boards.

3 - Self-learning through homework and small projects during the lecture - Interaction during the lecture.

-Homework and reports.

-Short tests

-Semester and final exams.

11. Infrastructure

1- Required textbooks 1.Elementary Theory of Structures, Yan-Yu Hseih,

Prentice Hall.

2. Structural Analysis

Nabeel Abdulrazzaq Jassim, Mayyada Yahya

Mohammed, Univ. of Basrah.

2- Main references (sources)

Recommended books and references (scientific journals, reports,...) and reliable websites.

Library locations in some international universities.

B - Electronic references, Internet sites

12. Course development plan

Course description form

Course description

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

1. The educational institution, University of Maysan

2. Scientific Department/Center, Civil Engineering Department

3. Course name/code Soil Mechanics II

4. Available forms of attendance: physical or electronic

5. Semester/Year, Second Semester/Third Stage

6. The total number of study hours is 45 theoretical hours + 30 practical hours

7. The date this description was prepared is January 2025

8. Course objectives

The course aims to calculate the stresses generated within the soil and the long-term subsidence resulting from these stresses. As well as evaluating the soil's tolerance to shear stresses and vertical and lateral loads.

9. Course outcomes and teaching, learning and evaluation methods

A- Cognitive objectives

A1- Identifying the types of stresses in saturated soils.

A2- Study of joining decline and methods of calculating it.

A3- Identify the methods used to find shear resistance in soil.

A4- Identify methods for calculating lateral soil pressure.

B - The skills objectives of the course.

B1 - Learn how to calculate the types of stresses generated in the soil.

B2 - Study of the joining theory and methods of calculating long-term decline.

B3 - Derivation of special equations to find soil shear resistance.

B4 - Derivation of special equations to evaluate lateral soil pressure on supporting structures.

Teaching and learning methods

• Scientific and research skills are developed through teaching and learning activities. Analytical and problem-solving skills are developed further through a set of problems prepared by lecturers and all submitted work is evaluated and responded to. All theoretical and practical lectures were prepared electronically and uploaded to social media platforms to be accessible to students when needed.

Evaluation methods

• Interaction within the lecture.

• Homework and reports.

• Short tests (Quizzes).

• Semester and final exams.

C- Emotional and value goals.

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

C2- Response: Monitoring the extent of the student's interaction with the material displayed on the screen.

C3- Interest: Following up on the interest of the student who interacted most with the presented material, by increasing this interaction by requesting other programs and applications to display it.

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

C5- Forming valuable behavior: meaning that the student reaches the top of the emotional ladder and has a stable level in the lesson and does not become lazy or fidgety.

Teaching and learning methods

• The usual theoretical presentation method using a whiteboard and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• The theoretical presentation method using the (data show) device and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• Laboratory presentation method using special devices to measure different properties of the material under experiment.

Evaluation methods

• Direct questions (how and why) of the topic during the theoretical and practical lecture.

• Sudden exams during the theoretical and practical lecture.

• Quarterly exams for the theoretical and practical aspects.

• Final exams for the theoretical and practical aspects.

D - Transferable general and qualifying skills (other skills related to employability and personal development).

D1- Developing the student's ability to perform assignments and submit them on time.

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

D3- Developing the student's ability to dialogue and discuss.

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

10. Course structure

Week Hours Required learning outcomes Name of unit/or subject Teaching method Evaluation method

The first 3: Knowledge of different types of soil stresses, In Situ Stresses, theoretical lecture, written exam

Second 3 Fundamentals of Consolidation Compressibility of Soil-Consolidation Settlement Theoretical lecture Written exam

Third 3 Determination of Consolidation Characteristics by Laboratory Consolidation Test Compressibility of Soil-Consolidation Settlement Theoretical lecture Written exam

Fourth 3 Application to Laboratory Consolidation Test Results Compressibility of Soil-Consolidation Settlement Theoretical Lecture Written exam

Fifth 3 Application to calculate primary and secondary consolidation Compressibility of Soil-Consolidation Settlement Theoretical lecture Written exam

Sixth 3 Determination of time rate of consolidation Compressibility of Soil-Consolidation Settlement Theoretical lecture Written exam

Seventh 3 How to accelerate consolidation settlement Compressibility of Soil-Consolidation Settlement Theoretical lecture Written exam

Eighth 3 Introduction to shear strength of soil Shear Strength of Soil, theoretical lecture, written exam

Ninth 3 Derivation of Mohr-Coulomb Failure Criterion Shear Strength of Soil Theoretical lecture Written exam

Tenth 3 Determination of shear strength parameters from laboratory tests Shear Strength of Soil theoretical lecture written exam

Eleventh 3 Application of finding shear strength parameters from laboratory tests Shear Strength of Soil theoretical lecture written exam

Twelfth 3 Application of finding shear strength parameters from laboratory tests Shear Strength of Soil theoretical lecture written exam

Thirteenth 3 Introduction to lateral earth pressure Lateral Earth Pressure A theoretical lecture and a written exam

Fourteenth 3 Derivation of Rankine's Theory of active and passive pressure Lateral Earth Pressure Theoretical lecture Written exam

Fifteenth 3 Application of Rankine's Theory of active and passive pressure Lateral Earth Pressure Theoretical lecture Written exam

11. Infrastructure

1- Required textbooks - Principles of Geotechnical Engineering (By: Braja M. Das, 7th Ed.)

2- Main references (sources) -Soil Mechanics (By: R.F. Craig, 4th Ed. or higher)

-Soil Mechanics (By: T.W. Lambe and R.V. Whitman)

Recommended books and references (scientific journals, reports,...) and reliable websites.

Library locations in some international universities.

B - Electronic references, Internet sites

12. Course development plan

Course description form

Course description

The model description provides a brief description of the main features of the course and the academic outcomes that the model student is expected to achieve if he takes advantage of the learning opportunities available for the course. Compare with the program description.

1. The educational institution, University of Maysan

2. Scientific Department/Center, Civil Engineering Department

3. Course name/code Reinforced Concrete Designs-II

4. Available forms of attendance: physical or electronic

5. Semester/Year, Second Semester/Third Stage

6. The total number of study hours is 75 hours

7. The date this description was prepared is January 2025

8. Course objectives

The course aims to present the basic methods in the analysis and design of reinforced concrete structures.

9. Course outcomes and teaching, learning and evaluation methods

A- Cognitive objectives

A1- Applying basic knowledge in understanding the analysis and design of two-way reinforced concrete slabs

A2- Analysis and design of different reinforced concrete columns with central loading and eccentric loading.

A3- Applying methods for calculating the overlap distances of rebar and the span distance inside concrete beams when cutting a number of rebar bars.

B - The skills objectives of the course.

B1 - Applying the mathematical methods adopted in international codes for the purposes of analysis and design.

B2 - Using basic knowledge to research new technologies.

B3 - Use simplified methods by relying on diagrams and tables to design columns subjected to eccentric and eccentric loads.

Teaching and learning methods

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

Evaluation methods

• Interaction within the lecture.

• Homework and reports.

• Short tests (Quizzes).

• Semester and final exams.

C- Emotional and value goals.

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

C2- Response: Monitoring the extent of the student's interaction with the material displayed on the screen.

C3- Interest: Following up on the interest of the student who interacted most with the presented material, by increasing this interaction by requesting other programs and applications to display it.

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

C5- Forming valuable behavior: meaning that the student reaches the top of the emotional ladder and has a stable level in the lesson and does not become lazy or fidgety.

Teaching and learning methods

• The usual theoretical presentation method using a whiteboard and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• The theoretical presentation method using the (data show) device and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• Laboratory presentation method using special devices to measure different properties of the material under experiment.

Evaluation methods

• Direct questions (how and why) of the topic during the theoretical and practical lecture.

• Sudden exams during the theoretical and practical lecture.

• Quarterly exams for the theoretical and practical aspects.

• Final exams for the theoretical and practical aspects.

D - Transferable general and qualifying skills (other skills related to employability and personal development).

D1- Developing the student's ability to perform assignments and submit them on time.

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

D3- Developing the student's ability to dialogue and discuss.

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

10. Course structure

Week Hours Required learning outcomes Name of unit/or subject Teaching method Evaluation method

The first 5 slabs type introduction, theoretical lecture and written exam

The second 5 Two way slab behavior under load Two way slabs A theoretical lecture and a written exam

Third 5 Load slab transfer to adjacent beams Two way slab A theoretical lecture and a written exam

Fourth 5 Two way slab analysis using ACI code method Two way slab Analysis A theoretical lecture and a written exam

Fifth 5 Reinforced two way slabs system design Two way slab design A theoretical lecture and a written exam

Sixth 5 Application Examples on design and analysis of Two way slab Practical Examples A theoretical lecture A written exam

Seventh: 5 Introduction Columns, theoretical lecture, written exam

Eighth: 5 Column under concentrated axial load Analysis of column, theoretical lecture, written exam

Ninth 5 Column under concentrated axial load Application Examples A theoretical lecture and a written exam

Tenth 5 Column under uniaxial load Analysis and design of column A theoretical lecture and a written exam

Eleventh 5 Column under uniaxial load application Examples Theoretical lecture Written exam

Twelfth 5 Column under biaxial loads Analysis and design of column A theoretical lecture and a written exam

Thirteenth 5 Column under biaxial loads Application Examples A theoretical lecture and a written exam

Fourteenth 5 Introduction Development length Theoretical lecture Written exam

Fifteenth 5 Application examples Development length Theoretical lecture Written exam

11. Infrastructure

1- The required textbooks.

2- Main 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. Nelson, David Derwin and Charles W. Dolan

5- Reinforced concrete design, 6th Edition 2009 By Edward G. Nawy

6- ACI Code 318- 2019

Recommended books and references (scientific journals, reports,...) and reliable websites.

Library locations in some international universities.

B - Electronic references, Internet sites

12. Course development plan

Course description form

Course description

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

1. The educational institution, University of Maysan

2. Scientific Department/Center, Civil Engineering Department

3. Name/code of the course Puncture Engineering

4. Available forms of attendance: in person or online

5. Semester/Year, Second Semester/Third Stage

6. The total number of study hours is 45 hours

7. The date this description was prepared is January 2025

8. Course objectives

9. Course outcomes and teaching, learning and evaluation methods

A- Cognitive objectives

A1- Clarifying the basic concepts of drilling engineering systems and their applications in agricultural fields.

A2- Gaining the ability to address the problems of rising groundwater levels.

A3- Acquiring basic skills in managing puncture systems and gaining experience in designing the puncture system and its suitability depending on the surrounding circumstances.

A4- Gaining experience in knowing the difference between the old and modern puncture systems and managing the puncture system optimally.

B - The skills objectives of the course.

B1 - The ability to design puncture systems in different ways.

B2 - The ability to think about problems of rising groundwater levels.

B3 - Writing scientific reports and reading charts and tables.

Teaching and learning methods

• Readings, self-learning, seminars.

• Exercises and activities in the lecture.

• Homework.

• Directing students to some websites to benefit and develop capabilities.

• Conducting discussion circles to explain and analyze a specific issue and find solutions to it.

Evaluation methods

• Interaction within the lecture.

• Homework and reports.

• Short tests (Quizzes).

• Semester and final exams.

C- Emotional and value goals.

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

C2- Response: Monitoring the extent of the student's interaction with the material displayed on the screen.

C3- Interest: Following up on the interest of the student who interacted most with the presented material, by increasing this interaction by requesting other programs and applications to display it.

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

C5- Forming valuable behavior: meaning that the student reaches the top of the emotional ladder So he has a stable level in the lesson and does not get lazy or fidget.

Teaching and learning methods

• The usual theoretical presentation method using a whiteboard and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• The theoretical presentation method using the (data show) device and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• Laboratory presentation method using special devices to measure different properties of the material under experiment.

Evaluation methods

• Direct questions (how and why) of the topic during the theoretical and practical lecture.

• Sudden exams during the theoretical and practical lecture.

• Quarterly exams for the theoretical and practical aspects.

• Final exams for the theoretical and practical aspects.

D - Transferable general and qualifying skills (other skills related to employability and personal development).

D1- Developing the student's ability to perform assignments and submit them on time.

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

D3- Developing the student's ability to dialogue and discuss.

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

10. Course structure

Week Hours Required learning outcomes Name of unit/or subject Teaching method Evaluation method

The first 3: Definition of paracentesis, causes of paracentesis and its benefits, theoretical introduction, questions and discussion

The second: 3 investigations of puncture projects, a theoretical introduction + tense, questions, discussion, and questions

Third 3 Soil permeability, method of calculating the permeability coefficient, theoretical introduction, questions and discussion

The fourth: 3 types of trocars, theoretical trocar networks + tonic questions, discussion, and questions

Fifth 3: Open trocars, puncture networks, theory + tension, questions and discussion

And cuz

Sixth 3: Vertical puncture, advantages of covered puncture, disadvantages of covered puncture, puncture networks, theoretical + tension, questions and discussion

And cuz

Seventh 3: Continuity equation, Mannick's equation, design of puncture sections, theoretical questions and discussion

The eighth: 3 issues in the design of open trocars. Design of the trocar sections. Theoretical + tensegrity questions, discussion, and discussion

Ninth 3: Design of covered trocars, depth of trocars, design of puncture segments, theoretical + tension, questions and discussion

Tenth 3 Hoggart's first equation, distances between trocars, theoretical questions and discussion

Eleventh 3 Hoggart's equation for stratified soil, distances between trocars, theoretical + tensional, questions and discussion

Twelfth 3 Equivalent depth in the Hoggart equation, puncture in the case of unstable flow, distances between the trocars, theoretical + tension, questions and discussion

Thirteenth 3 Hydraulic conductivity in the case of steady flow of a confined and unconfined reservoir Vertical puncture Theoretical Questions, discussion, and insight

Fourteenth 3 Hydraulic conductivity in the case of unstable flow Vertical puncture Theoretical Questions and discussion

Fifteenth 3 The effect resulting from pumping multiple wells Vertical puncture Theoretical + tense Questions, discussion, and advice

11. Infrastructure

1- Required prescribed books

2- Main references (sources): Arabic and foreign puncture engineering books

Recommended books and references (scientific journals, reports,...)

B - Electronic references, Internet sites, and reliable electronic sites.

Library locations in some international universities.

12. Course development plan

Course description form

Course description

The model description provides a brief description of the main features of the course and the academic outcomes that the model student is expected to achieve if he takes advantage of the learning opportunities available for the course. Compare with the program description.

1. The educational institution, University of Maysan

2. Scientific Department/Center, Civil Engineering Department

3. Name/code of the course Engineering Economics

4. Available forms of attendance: physical or electronic

5. Semester/Year, Second Semester/Third Stage

6. The total number of study hours is 30 hours

7. The date this description was prepared is January 2025

8. Course objectives

The course aims to present the basics of project management with a special focus on the project selection phase, cost estimation, cash flows, project duration compression methods, EVM, and risk and contract management.

9. Course outcomes and teaching, learning and evaluation methods

A- Cognitive objectives

A1- Introduction to strategic planning and the project selection process.

A2- Earned value management and project compression technology.

A3- Risk and contract management.

A4- Stakeholder management and human resources

B - The skills objectives of the course.

B1 - Methods for studying cost versus benefit and estimating project costs

B2 - Applying earned value management techniques and project compression techniques.

Teaching and learning methods

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

Evaluation methods

• Interaction within the lecture.

• Homework and reports.

• Short tests (Quizzes).

• Semester and final exams.

C- Emotional and value goals.

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

C2- Response: Monitoring the extent of the student's interaction with the material displayed on the screen.

C3- Interest: Following up on the interest of the student who interacted most with the presented material, by increasing this interaction by requesting other programs and applications to display it.

C4- Forming the direction: meaning to be the student Sympathetic to the presentation and may have an opinion towards the topic presented and defend it.

C5- Forming valuable behavior: meaning that the student reaches the top of the emotional ladder and has a stable level in the lesson and does not become lazy or fidgety.

Teaching and learning methods

• The usual theoretical presentation method using a whiteboard and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• The theoretical presentation method using the (data show) device and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• Laboratory presentation method using special devices to measure different properties of the material under experiment.

Evaluation methods

• Direct questions (how and why) of the topic during the theoretical and practical lecture.

• Sudden exams during the theoretical and practical lecture.

• Quarterly exams for the theoretical and practical aspects.

• Final exams for the theoretical and practical aspects.

D - Transferable general and qualifying skills (other skills related to employability and personal development).

D1- Developing the student's ability to perform assignments and submit them on time.

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

D3- Developing the student's ability to dialogue and discuss.

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

10. Course structure

Week Hours Required learning outcomes Name of unit/or subject Teaching method Evaluation method

The first 2 Introduction to Strategic Planning and Project Selection Introduction to project management A theoretical lecture and a written exam

The second 2 Project Selection Methods Simple and Compound Interest, theoretical lecture, written exam

Third 2 Project Selection Methods Net Present Value (NPV), theoretical lecture, written exam

Fourth 2 Project Selection Methods Payback Period (PP) Theoretical lecture Written exam

Fifth 2 Project Selection Methods Return On Investment (ROI), Internal Rate of Return (IRR) Theoretical lecture Written exam

Sixth 2 Project Selection Methods Accounting Rate of Return (ARR), theoretical lecture, written exam

Seventh 2 Cost Management Cost Estimation Theoretical lecture Written exam

Eighth 2 Cost Management Cash Flow, theoretical lecture, written exam

Ninth 2 Project Monitoring and Control Crashing, theoretical lecture, written exam

Tenth 2 Project Monitoring and Control EVM, theoretical lecture, written exam

Eleventh 2 Risk Management Planning for Risk, theoretical lecture, written exam

Twelfth 2 Procurement Management Contracts, theoretical lecture, written exam

Thirteenth 2 Linear Programming LP Formulation and LP Simplex, theoretical lecture, written exam

Fourteenth 2 Stakeholder Management Stakeholder Management Theoretical lecture Written exam

Fifteenth 2 Human resource management Human resource management, theoretical lecture, written exam

11. Infrastructure

1- Required textbooks 1. A Guide to the project management body of knowledge - PMI.

2. Construction Project Management and Professional Relations: Ihsan Al-Attar

2- Main references (sources)

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, Internet sites, sites with a good reputation and scientific sobriety. Such as PMI.org or apm.org.uk

Library locations in some international universities.

12. Course development plan

Course description form

Course description

The model description provides a brief description of the main features of the course and the academic outcomes that the model student is expected to achieve if he takes advantage of the learning opportunities available for the course. Compare with the program description.

1. The educational institution, University of Maysan

2. Scientific Department/Center, Civil Engineering Department

3. Name/code of the course Transportation Engineering

4. Available forms of attendance: physical or electronic

5. Semester/Year, Second Semester/Third Stage

6. The total number of study hours is 45 hours

7. The date this description was prepared is January 2025

8. Course objectives

This course aims to present the basic concepts of transportation planning as an introduction to studying the process of forecasting demand for travel and public transportation.

9. Course outcomes and teaching, learning and evaluation methods

A- Cognitive objectives

A1- Applying the basic elements of transportation planning.

A2- Applying the sequential steps of the travel demand forecasting process (the four-step process).

A3- Access to public transportation.

B - The skills objectives of the course.

B1 - The ability to identify and analyze engineering problems

B2 - Apply quantitative and numerical methods for the purpose of solving transportation engineering problems.

B3 - The 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. Analytical and problem-solving skills are developed through a set of problems prepared by lecturers through small study groups, and all submitted work is evaluated and responded to Evaluation methods

• Interaction within the lecture.

• Homework and reports.

• Short tests (Quizzes).

• Semester and final exams.

C- Emotional and value goals.

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

C2- Response: Monitoring the extent of the student's interaction with the material displayed on the screen.

C3- Interest: Following up on the interest of the student who interacted most with the presented material, by increasing this interaction by requesting other programs and applications to display it.

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

C5- Forming valuable behavior: meaning that the student reaches the top of the emotional ladder and has a stable level in the lesson and does not become lazy or fidgety.

Teaching and learning methods

• The usual theoretical presentation method using a whiteboard and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• The theoretical presentation method using the (data show) device and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• Laboratory presentation method using special devices to measure different properties of the material under experiment.

Evaluation methods

• Direct questions (how and why) of the topic during the theoretical and practical lecture.

• Sudden exams during the theoretical and practical lecture.

• Quarterly exams for the theoretical and practical aspects.

• Final exams for the theoretical and practical aspects.

D - Transferable general and qualifying skills (other skills related to employability and personal development).

D1- Developing the student's ability to perform assignments and submit them on time.

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

D3- Developing the student's ability to dialogue and discuss.

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

10. Course structure

Week Hours Required learning outcomes Name of unit/or subject Teaching method Evaluation method

The first 3 Introduction to Transportation Engineering Introduction and Background, theoretical lecture, written exam

The second 3 Introduction to Transportation Engineering History of transportation engineering, theoretical lecture, written exam

Third 3: Introduction to Transportation Engineering Modes of Transportation & mode selection, theoretical lecture, written exam

Fourth 3 Transportation Planning Urban transportation Planning Theoretical lecture Written exam

Fifth 3 Transportation Planning Basic Elements of Transportation Planning A theoretical lecture and a written exam

Sixth 3 Travel Demand Forecasting Travel Demand Forecasting process Theoretical lecture Written exam

Seventh 3 Travel Demand Forecasting Data Collection Theoretical lecture Written exam

Eighth 3 Travel Demand Forecasting Trip Generation Theoretical lecture Written exam

Ninth 3 Travel Demand Forecasting Trip Generation Theoretical lecture Written exam

Tenth 3 Travel Demand Forecasting Trip Distribution Theoretical lecture Written exam

Eleventh 3 Travel Demand Forecasting Modal Split, theoretical lecture, written exam

Twelfth 3 Travel Demand Forecasting Traffic Assignment, theoretical lecture, written exam

Thirteenth 3 Public Transportation Bus and Rail Operations, theoretical lecture, written exam

Fourteenth 3 Public Transportation Capacity of Bus Stop Theoretical lecture Written exam

Fifteenth 3 Public Transportation Constructing Route Schedule Theoretical lecture Written exam

11. Infrastructure

1- Required textbooks Traffic & Highway Engineering (4th Edition, SI)

Nicholas J. Garber and Lester A. Hoel Cengage Learning, Stamford, USA, 2010.

.

2- Main references (sources)

Recommended books and references (scientific journals, reports,...) and reliable websites.

Library locations in some international universities.

B - Electronic references, Internet sites

12. Course development plan

Updating and developing study topics periodically.

Course description form

Course description

The model description provides a brief description of the main features of the course and the academic outcomes that the model student is expected to achieve if he takes advantage of the learning opportunities available for the course. Compare with the program description.

1. The educational institution, University of Maysan

2. Scientific Department/Center, Civil Engineering Department

3. Name/code of the course Computer Applications-2

4. Available forms of attendance: physical or electronic

5. Semester/Year, Second Semester/Third Stage

6. The total number of study hours is 30 hours

7. The date this description was prepared is January 2025

8. Course objectives

The course aims to present the principles of structural analysis and design of facilities using the ETABS program.

9. Course outcomes and teaching, learning and evaluation methods

A- Cognitive objectives

A1- Structural analysis and design of facilities using the ETABS program.

B - The skills objectives of the course.

B1 - Using the ETABS program for the purpose of analyzing and designing facilities.

Teaching and learning methods

• Scientific and research skills are developed through teaching and learning activities. Analytical and problem-solving skills are developed further through problem sets prepared by lecturers through small study groups and evaluation. And respond to all submitted work.

Evaluation methods

• Interaction within the lecture.

• Homework and reports.

• Short tests (Quizzes).

• Semester and final exams.

C- Emotional and value goals.

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

C2- Response: Monitoring the extent of the student's interaction with the material displayed on the screen.

C3- Interest: Following up on the interest of the student who interacted most with the presented material, by increasing this interaction by requesting other programs and applications to display it.

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

C5- Forming valuable behavior: meaning that the student reaches the top of the emotional ladder and has a stable level in the lesson and does not become lazy or fidgety.

Teaching and learning methods

• The usual theoretical presentation method using a whiteboard and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• The theoretical presentation method using the (data show) device and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• Laboratory presentation method using special devices to measure different properties of the material under experiment.

Evaluation methods

• Direct questions (how and why) of the topic during the theoretical and practical lecture.

• Sudden exams during the theoretical and practical lecture.

• Quarterly exams for the theoretical and practical aspects.

• Final exams for the theoretical and practical aspects.

D - Transferable general and qualifying skills (other skills related to employability and personal development).

D1- Developing the student's ability to perform assignments and submit them on time.

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

D3- Developing the student's ability to dialogue and discuss.

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

10. Course structure

Week Hours Required learning outcomes Name of unit/or subject Teaching method Evaluation method

The first 2 Introduction to Etabs Introduction to Etabs Practical lecture Practical exam

The second 2 Modeling of the Structures Modeling of the Structures Practical lecture Practical exam

Third 2 Modeling of the Structures Modeling of the Structures Practical lecture Practical exam

Fourth 2 Modeling of the Structures Modeling of the Structures Practical lecture Practical exam

Fifth 2 Loading Definition Loading Definition Practical lecture Practical exam

Sixth 2 Loading Application Loading Application Practical lecture Practical exam

Seventh 2 Lateral Loads Lateral Loads Practical lecture Practical exam

Eighth 2 Structural Analysis Structural Analysis Practical lecture Practical exam

Ninth 2 Results Display Results Display Practical lecture Practical exam

Tenth 2 Results Display Results Display Practical lecture Practical exam

Eleventh 2 Reinforced Concrete Frame Design Reinforced Concrete Frame Design Practical lecture Practical exam

Twelfth 2 Reinforced Concrete Frame Design Reinforced Concrete Frame Design Practical lecture Practical exam

Thirteenth 2 Steel Frame Design Steel Frame Design Practical lecture Practical exam

Fourteenth 2 Steel Frame Design Steel Frame Design Practical lecture Practical exam

Fifteenth 2 Export and Import Files Export and Import Files Practical lecture Practical exam

11. Infrastructure

1- Required textbooks: Etabs Manuals

2- Main references (sources)

Recommended books and references (scientific journals, reports,...) and reliable websites.

Library locations in some international universities.

B - Electronic references, Internet sites

12. Course development plan

Increasing the number of units and hours allocated to the course

Course description form

Course description

Prestressed concrete is a type of reinforced concrete that contains reinforcing bars that have been pre-tensioned in order to generate initial stresses in the concrete section that are, by their nature, opposite to the stresses that the structure is likely to be exposed to during service use. This is done by pulling (or tensioning) a special type of heavy-duty rods to a certain amount inside the concrete and then releasing them after ensuring that they are prevented from returning to their original position, and relying on Newton's laws and other engineering laws, which will in turn place adverse stresses on the concrete, which are the primary stresses that make concrete. Pre-voltage based

1. The educational institution, University of Maysan
2. Scientific Department/Center, Civil Engineering Department
3. Name/code of the prestressed concrete design course
4. Available forms of attendance: physical or electronic

5. Semester/year, first semester/fourth stage

6. The total number of study hours is 60 hours

7. The date this description was prepared is January 2025

8. Course objectives

Giving students a comprehensive idea of how to manufacture, install, and behave prestressed concrete and its uses, as well as how to design prestressed concrete thresholds. Calculating the live and dead loads lifted on the precast concrete structure.

9. Course outcomes and teaching, learning and evaluation methods

A- Cognitive objectives

A1- Clarifying the basic concepts in prestressed concrete.

A2- Acquiring skills in dealing with problems and issues related to prestressed concrete.

A3- Acquiring skills Basic introduction to the design and implementation of prestressed concrete.

A4- Gaining a basic understanding of how this type of concrete works.

B - The skills objectives of the course.

B1 - The ability to understand the mechanism of pre-stress.

B2 - The ability to think about addressing a specific 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, seminars.

• Exercises and activities in the lecture.

• Homework.

• Directing students to some websites to benefit and develop capabilities.

• Conducting discussion circles to explain and analyze a specific issue and find solutions to it.

Evaluation methods

• Interaction within the lecture.

• Homework and reports.

• Short tests (Quizzes).

• Semester and final exams.

C- Emotional and value goals.

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

C2- Response: Monitoring the extent of the student's interaction with the material displayed on the screen.

C3- Interest: Following up on the interest of the student who interacted most with the presented material, by increasing this interaction by requesting other programs and applications to display it.

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

C5- Forming valuable behavior: meaning that the student reaches the top of the emotional ladder and has a stable level in the lesson and does not become lazy or fidgety.

Teaching and learning methods

• Multiple choice questions.

• Completion questions.

• Understanding scientific material and engineering principles.

• Apply knowledge in a simple way to interpret data, diagnose and solve problems

Evaluation methods

• Active participation in the classroom is evidence of the student's commitment and responsibility.

• Commitment to the specified deadline for submitting the assignments and research required of the student.

• Semester and final tests express commitment and cognitive and skill achievement.

D - Transferable general and qualifying skills (other skills related to employability and personal development).

D1- Developing the student's ability to perform assignments and submit them on time.

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

D3- Developing the student's ability to dialogue and discuss.

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

10. Course structure

Week Hours Required learning outcomes Name of unit/or subject Teaching method Evaluation method

The first 4: Knowing the effects of prestressing, advantages and disadvantages, theoretical questions and discussion.

Second 4: Study of prestressed concrete materials: theoretical + tensional questions, discussion, and advice

Third 4: Knowledge of prestressing systems and equipment, theoretical questions and discussion

Fourth 4: How to distribute stress, concrete stress control by prestressing, theoretical + tense, questions, discussion, and advice.

Fifth 4: The immediate and long-term losses resulting from loss of pressure force. Theoretical questions and discussion

Sixth 4 Study of elastic flexural analysis, theoretical + tensional questions and discussion

Seventh 4 Elastic flexural analysis study Theoretical questions and discussion

Eighth 4 Flexural strength analysis, theoretical questions, discussion, and advice

Ninth 4: Flexural strength analysis, theoretical + torsional questions and discussion

Tenth 4 Shear in prestressed beams Shear in prestressed concrete beams Theoretical questions and discussion

Eleventh 4 Shear in prestressed beams Shear in prestressed concrete beams Theoretical questions and discussion

Twelfth 4 Upper and lower precipitation, camber and deflections, theoretical + tense, questions and discussion

Thirteenth 4 Upper and lower precipitation camber and deflections Theoretical questions, discussion and advice

Fourteenth 4 Analysis using the YLT method yield line analysis for slabs Theoretical questions and discussion

Fifteenth 4 Analysis using the YLT method yield line analysis for slabs Theoretical + tenseral questions and discussion

11. Infrastructure

1- Required prescribed books

2- Main references (sources) ● Design of Concrete Structures, David Darwin, Charles W. Dolan, Arthur H. Nelson, McGraw-Hill.

● Design of prestressed concrete, Arthur H. Nelson, 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

Recommended books and references (scientific journals, reports,...)

B - Electronic references, Internet sites, and reliable electronic sites.

Library locations in some international universities.

12. Course development plan

Conducting multiple visits to prestressed concrete factories or work sites for the purpose of gaining on-site experience

Course description form

Course description

The model description provides a brief description of the main features of the course and the academic outcomes that the model student is expected to achieve if he takes advantage of the learning opportunities available for the course. Compare with the program description.

1. The educational institution, University of Maysan

2. Scientific Department/Center, Civil Engineering Department

3. Name/code of the course: Foundational Engineering-1

4. Ashka For attendance available in person or online

5. Semester/year, first semester/fourth stage

6. The total number of study hours is 60 hours

7. The date this description was prepared is January 2025

8. Course objectives

The course aims to know the designs of shallow foundations so that shear failure does not occur in the soil supporting the foundation or the foundation collapses more than the permissible value.

9. Course outcomes and teaching, learning and evaluation methods

A- Cognitive objectives

A1- Knowing how to conduct field investigations.

A2- Knowing the methods of calculating the bearing capacity of soil for shallow foundations.

A3- Knowing the factors affecting the bearing capacity of soil.

A4- Knowing how to calculate the instantaneous, joining, and secondary subsidence, and knowing how to calculate the stresses in the soil mass as a result of loads of different shapes imposed on the surface of the soil.

B - The skills objectives of the course.

B1 - Designing shallow foundations for buildings to safely transfer building loads to the soil.

B2 - Determine the number and depths of holes required for soil investigations.

B3 - Determine the amount of total subsidence that occurs under shallow foundations.

Teaching and learning methods

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

Evaluation methods

• Interaction within the lecture.

• Homework and reports.

• Short tests (Quizzes).

• Semester and final exams.

C- Emotional and value goals.

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

C2- Response: Monitoring the extent of the student's interaction with the material displayed on the screen.

C3- Interest: Following up on the interest of the student who interacted most with the presented material, by increasing this interaction by requesting other programs and applications to display it.

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

C5- Forming valuable behavior: meaning that the student reaches the top of the emotional ladder and has a stable level in the lesson and does not become lazy or fidgety.

Teaching and learning methods

• The usual theoretical presentation method using a whiteboard and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• The theoretical presentation method using the (data show) device and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• Laboratory presentation method using special devices to measure different properties of the material under experiment.

Evaluation methods

• Direct questions (how and why) of the topic during the theoretical and practical lecture.

• Sudden exams during the theoretical and practical lecture.

• Quarterly exams for the theoretical and practical aspects.

• Final exams for the theoretical and practical aspects.

D - Transferable general and qualifying skills (other skills related to employability and personal development).

D1- Developing the student’s ability to perform assignments and submit them on time.

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

D3- Developing the student's ability to dialogue and discuss.

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

10. Course structure

Week Hours Required learning outcomes Name of unit/or subject Teaching method Evaluation method

The first 4 definition

Classification of foundations

public needs

Choosing the basis, introduction, theoretical lecture, written exam

II 4 Purpose

Planning

Methods: Site investigations, theoretical lecture, written exam

III 4 soil models

Models become distorted

Forms taken

Number of test pits, site investigations, theoretical lecture, written exam

Fourth: 4 depths of test holes

Field examinations, site investigations, a theoretical lecture, and a written exam

Fifth 4 Investigation report

Definition of endurance

Failure paths, soil bearing capacity for shallow foundations, theoretical lecture, written exam

VI 4 Terzaki's theory

Safety factor, soil bearing capacity for shallow foundations, theoretical lecture, written exam

Seventh 4 The effect of groundwater level

Meyerhof equation

Hansen's equation, soil bearing capacity for shallow foundations, theoretical lecture, written exam

VIII 4 Skempton equation

Foundations subjected to eccentric loads, soil bearing capacity for shallow foundations, theoretical lecture, written exam

Ninth: 4 Foundations built on layered soil

Foundations adjacent to slopes, soil bearing capacity for shallow foundations, theoretical lecture, written exam

Tenth 4 Bearing Capacity from Field Tests Bearing Capacity of Soil for Shallow Foundations, Theoretical Lecture, Written Exam

Eleventh 4 Foundations subjected to traction loads

Types of foundation subsidence

Seam pressure, subsidence of foundations, theoretical lecture, written exam

Twelfth 4 Stresses in the soil mass and subsidence of foundations, theoretical lecture, written exam

Thirteenth 4 Instantaneous decline Fundamental decline Theoretical lecture Written exam

Fourteenth 4, joining, falling, foundations, theoretical lecture, written exam

XV 4 Time rate of joining decline

Correction of construction period

Secondary subsidence

Permissible landing

Falling foundations, theoretical lecture, written exam

11. Infrastructure

1- Required textbooks Foundation Analysis and Design, 5th Ed, Bowles, 1996.

2- Main references (sources)

Recommended books and references (scientific journals, reports,....) Principles of Foundation Engineering, 9th Ed, Das, 2019.

B – bitter The most important electronic sites, Internet sites, discreet electronic sites.

Library locations in some international universities.

12. Course development plan

Course description form

Course description

The course provides basic information about the properties of iron materials and learns about the different design methods for steel structures and how to design structural members subjected to bending forces, including the two types, which are supported laterally and not supported laterally. Also learn how to design the connections between structural members

1. The educational institution, University of Maysan
2. Scientific Department/Center, Civil Engineering Department
3. Name/code of the course Design of Steel Structures/CE413
4. Available forms of attendance: physical or electronic
5. Semester/year, first semester/fourth stage
6. The total number of study hours is 45 hours
7. The date this description was prepared is January 2025
8. Course objectives

Definition of the structural properties of iron

Introducing the methods of designing steel structures

Design of structural members subject to bending

Design of connections using bolts and welding

9. Course outcomes and teaching, learning and evaluation methods

A- Cognitive objectives

A1- Clarifying the basic concepts of design

A2- Acquiring skills in designing members of steel structures subjected to bending forces.

A3- Identify the design of connections between structural members.

B - The skills objectives of the course.

B1 - The ability to design members of steel structures subject to bending.

B2 - The ability to design various connections for structural members.

B3 - Writing scientific reports.

B4 - The ability to gain experience in dealing with programmed systems

Teaching and learning methods

• Readings, self-learning, seminars.

• Exercises and activities in the lecture.

• Homework.

• Directing students to some websites to benefit and develop capabilities.

• Conducting discussion circles to explain and analyze a specific issue and find solutions to it.

Evaluation methods

• Interaction within the lecture.

• Homework and reports.

• Short tests (Quizzes).

• Semester and final exams.

C- Emotional and value goals.

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

C2- Response: Monitoring the extent of the student's interaction with the material displayed on the screen.

C3- Interest: Following up on the interest of the student who interacted most with the material presented, by increasing this interaction by requesting other programs and applications to display it.

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

C5- Forming valuable behavior: meaning that the student reaches the top of the emotional ladder and has a stable level in the lesson and does not become lazy or fidgety.

Teaching and learning methods

• The usual theoretical presentation method using a whiteboard and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• The theoretical presentation method using the (data show) device and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• Laboratory presentation method using special devices to measure different properties of the material under experiment.

Evaluation methods

• Direct questions (how and why) of the topic during the theoretical and practical lecture.

• Sudden exams during the theoretical and practical lecture.

• Quarterly exams for the theoretical and practical aspects.

• Final exams for the theoretical and practical aspects.

D - Transferable general and qualifying skills (other skills related to employability and personal development).

D1- Developing the student's ability to perform assignments and submit them on time.

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

D3- Developing the student's ability to dialogue and discuss.

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

10. Course structure

Week Hours Required learning outcomes Name of unit/or subject Teaching method Evaluation method

The first 3: Getting to know the course: Introduction, theoretical questions and discussion

The second: 3 limit states of design, theoretical + tense, questions and discussion

Third 3: Identifying the loads imposed on facilities, working and factored loads, theoretical questions and discussion

Fourth 3: Identifying the properties of iron, Material properties and specifications, theoretical + tense, questions, discussion, and advice

Fifth 3 Introduction Design of beams Theoretical questions and discussion

Sixth: 3 Laterally supported beams, theoretical + tensional questions and discussion

Seventh 3 Laterally unsupported beams Theoretical questions and discussion

Eighth 3 Design for flexure Theoretical questions and discussion

Ninth 3 Section leg buckling and loading pressure Web bearing and web buckling Theoretical questions and discussion

Tenth 3 Design of bridge cranes Design of gantry girder Theoretical questions and discussion

Eleventh 3 Design for Moment capacity Theoretical questions and discussion

Twelfth 3 Design for shearing shear capacity Theoretical + tensional questions and discussion

Thirteenth 3 Bolted connections, theoretical questions, discussion, and advice

Fourteenth 3 Bolted connections, theoretical questions and discussion

Fifteenth 3 Welded connections: theoretical + tensional questions and discussion

11. Infrastructure

1- Required textbooks: Structural steelwork design to limit state theory. by D. lam

2- Main references (sources) BS 5950 part-1

Recommended books and references (scientific journals, reports,....) Steelwork design guide to BS 5950-1

B - Electronic references, Internet sites

12. Course development plan

Course description form

Course description

Study and design of different types of hydraulic installations.

10. The educational institution, University of Maysan

11. Scientific Department/Center, Department of Civil Engineering

12. Course name/code Hydraulic facilities

13. Available forms of attendance: physical or electronic

14.

15. Semester/year, first semester/fourth stage

16. The total number of study hours is 60 hours

17. The date this description was prepared is January 2025

18. Course objectives

Ability to design and implement hydraulic installations.

19. Course outcomes and teaching, learning and evaluation methods

A- Cognitive objectives

A1- Cognitive abilities: understanding the types of hydraulic facilities.

B - The skills objectives of the course.

B1-Ability to work on civil engineering projects.

Teaching and learning methods

• Readings, self-learning, seminars.

• Exercises and activities in the lecture.

• Homework.

• Directing students to some websites to benefit and develop capabilities.

• Conducting discussion circles to explain and analyze a specific issue and find solutions to it.

Evaluation methods

• Interaction within the lecture.

• Homework and reports.

• Short tests (Quizzes).

• Semester and final exams.

C- Emotional and value goals.

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

C2- Response: Monitoring the extent of the student's interaction with the material displayed on the screen.

C3- Interest: Following up on the interest of the student who interacted most with the presented material, by increasing this interaction by requesting other programs and applications to display it.

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

C5- Forming valuable behavior: meaning that the student reaches the top of the emotional ladder and has a stable level in the lesson and does not become lazy or fidgety.

Teaching and learning methods

• Multiple choice questions.

• Completion questions.

• Understanding scientific material and engineering principles.

• Apply knowledge in a simple way to interpret data, diagnose and solve problems

Evaluation methods

• Active participation in the classroom is evidence of the student's commitment and responsibility.

• Commitment to the specified deadline for submitting the assignments and research required of the student.

• Semester and final tests express commitment and cognitive and skill achievement.

D - Transferable general and qualifying skills (other skills related to employability and personal development).

D1- Developing the student's ability to perform assignments and submit them on time.

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

D3- Developing the student's ability to dialogue and discuss.

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

10. Course structure

Week Hours Required learning outcomes Name of unit/or subject Teaching method Evaluation method

The first 4 design Intoduction theoretical questions and discussion

The second 4 Design Piping and viewing page, theoretical + tense, questions, discussion, and advice

Third 4 Design Design of floor Theoretical questions and discussion

Fourth: 4 Design Bligh theory, theoretical + tense, questions, discussion, and cos

Fifth 4 design lane theory theoretical questions and discussion

Sixth 4 Design, Khosla theory, theoretical + tense, questions and discussion

Seventh 4 Desugn Hydraulic jummp theoretical questions and discussion

Eighth 4 design Stilling basin theoretical questions, discussion and advice

Ninth 4 design Vertical drop Theoretical + testimonial questions and discussion

X 4 design Culvert theoretical questions and discussion

Eleventh 4 design Aqueduct theoretical questions and discussion

Twelfth 4 Design Siphin Theoretical + Tentative Questions and Discussion

Thirteenth 4 design Box siphon Theoretical questions, discussion and advice

Fourteenth 4 design Sliding gate Theoretical questions and discussion

Fifteenth 4 design weir theoretical + tenseral questions and discussion

11. Infrastructure

1- Required textbooks: Hydraulic structures by Novak

2- Main references (sources) Theorynand Design of irrigation structures by Gupta

Recommended books and references (scientific journals, reports,...)

B - Electronic references, Internet sites, and reliable electronic sites.

Library locations in some international universities.

12. Course development plan

Course description form

Course description

Highway engineering is a multidisciplinary field with interrelated sub-disciplines including planning, safety, design and related fields such as structural, hydraulic and geotechnical engineering.

1. The educational institution, University of Maysan

2. Scientific Department/Center, Civil Engineering Department

3. Course name/code Road Engineering - 415

4. Available forms of attendance: physical or electronic

5. Semester/year, first semester/fourth stage

6. The total number of study hours is 45 hours

7. The date this description was prepared is January 2025

8. Course objectives

• The course aims to present the basic element of highway engineering design and addresses the dimensions and layout of the visual features of the highway. Distinguished The elements that are usually taken into consideration are cross-section, sighting distance, horizontal curvature, slope, and intercept.

9. Course outcomes and teaching, learning and evaluation methods

A- Cognitive objectives

A1- It gives us a historical overview of road engineering and an idea of roads in ancient times.

A2- The focus in engineering design is on meeting driver and vehicle-specific requirements such as safety, comfort, efficiency, etc.

A3- The properties of cross-section elements are important in the engineering design of highways because they affect safety and comfort.

A4- Horizontal planning is considered one of the most important features that affect the efficiency and safety of the highway.

B - The skills objectives of the course.

B1 – Appropriate design of the horizontal curve, including all elements within a single curve and consistency of the curvature along the highway.

B2 - Design speed is one of the important factors that affects engineering design..

B3 - Deriving and evaluating the information necessary to apply engineering analysis methods to unfamiliar problems.

Teaching and learning methods

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

Evaluation methods

• Interaction within the lecture.

• Homework and reports.

• Short tests (Quizzes).

• Semester and final exams.

C- Emotional and value goals.

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

C2- Response: Monitoring the extent of the student's interaction with the material displayed on the screen.

C3- Interest: Following up on the interest of the student who interacted most with the presented material, by increasing this interaction by requesting other programs and applications to display it.

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

C5- Forming valuable behavior: meaning that the student reaches the top of the emotional ladder and has a stable level in the lesson and does not become lazy or fidgety.

Teaching and learning methods

• The usual theoretical presentation method using a whiteboard and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• The theoretical presentation method using the (data show) device and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• Laboratory presentation method using special devices to measure different properties of the material under experiment.

Evaluation methods

• Direct questions (how and why) of the topic during the theoretical and practical lecture.

• Sudden exams during the theoretical and practical lecture.

• Quarterly exams for the theoretical and practical aspects.

• Final exams for the theoretical and practical aspects.

D - Transferable general and qualifying skills (other skills related to employability and personal development).

D1- Developing the student’s ability to perform assignments and submit them on time.

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

D3- Developing the student's ability to dialogue and discuss.

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

10. Course structure

Week Hours Required learning outcomes Name of unit/or subject Teaching method Evaluation method

The first 3: Introduction to Highway Engineering History of Highway Engineering, theoretical lecture, oral exam

The second 3 Introduction to geometric design Factors affecting geometric design A theoretical lecture and an oral exam

The third: 3 Road classification Factors affecting classification of roads. A theoretical lecture and an oral exam

Fourth 3 Cross Sectional Element Right of Highway Theoretical lecture Oral exam

Fifth 3 Highway Location Principle of Highway Location A theoretical lecture and an oral exam

Sixth 3 Horizontal alignment I

Analysis of super-elevation, theoretical lecture, written exam

Seventh 3 Horizontal alignment II

Extra Widening, theoretical lecture, written exam

Eighth 3 Horizontal alignment III

Horizontal Curve Fundamentals, theoretical lecture, written exam

Ninth: 3 Horizontal alignment III Reverse, compound, and Spiral curves, theoretical lecture, written exam

Tenth: 3 Horizontal alignment IV Sight Distance on Horizontal Curve, theoretical lecture, written exam

Eleventh 3 Vertical Alignment Parabolic Formula Theoretical lecture Written exam

Twelfth 3 Macadam Bases & Stabilization Stabilized Bases & Subbases Theoretical lecture Written exam

Thirteenth 3 Earthworks & Subgrades Compaction Theoretical lecture Written exam

Fourteenth 3 Earthworks & Subgrades Control of Embankment Construction Theoretical lecture Written exam

Fifteenth 3 Highway Drainage Surface Drainage System Design, theoretical lecture, written exam

11. Infrastructure

1- Required textbooks 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- Main references (sources) Hand book: Handbook of Transportation Engineering. By Myer Kutz.2004.

Recommended books and references (scientific journals, reports,....) AASHTO (1993)

B - Electronic references, Internet sites 12. Course development plan

It is possible to add new topics with examples that bring closer understanding and understanding of the material

Course description form

Course description

This paper provides a brief description of the main features of the course and the academic outcomes that a typical student is expected to achieve if he takes advantage of the learning opportunities available for the course.

1. The educational institution, University of Maysan

2. Scientific Department/Center, Civil Engineering Department

3. Course name/code Water Supply Engineering/CE416

4. Available forms of attendance: physical or electronic

5. Semester/year, first semester/fourth stage

6. The total number of study hours is 45 hours

7. The date this description was prepared is January 2025

8. Course objectives

The course aims to present materials dealing with water distribution and treatment. It also provides all the details of the hydraulic design of the water treatment plant units.

9. Course outcomes and teaching, learning and evaluation methods

A- Cognitive objectives

A1- Calculating the amount of water.

A2-Description of pipe materials.

A3-Water distribution systems.

A4- Design of water treatment plant units.

B - The skills objectives of the course.

B1 - A mathematical solution to the problems governing the design of water distribution and treatment systems.

B2 - Excel program to facilitate solving repetitive problems.

Teaching and learning methods

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

Evaluation methods

• Interaction within the lecture.

• Homework and reports.

• Short tests (Quizzes).

• Semester and final exams.

C- Emotional and value goals.

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

C2- Response: Monitoring the extent of the student's interaction with the material displayed on the screen.

C3- Interest: Following up on the interest of the student who interacted most with the material presented, by increasing this interaction by requesting other programs and applications to display it.

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

C5- Forming valuable behavior: meaning that the student reaches the top of the emotional ladder and has a stable level in the lesson and does not become lazy or fidgety.

Teaching and learning methods

• The usual theoretical presentation method using a whiteboard and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• The theoretical presentation method using the (data show) device and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• Laboratory presentation method using special devices to measure different properties of the material under experiment.

Evaluation methods

• Direct questions (how and why) of the topic during the theoretical and practical lecture.

• Sudden exams during the theoretical and practical lecture.

• Quarterly exams for the theoretical and practical aspects.

• Final exams for the theoretical and practical aspects.

D - Transferable general and qualifying skills (other skills related to employability and personal development).

D1- Developing the student's ability to perform assignments and submit them on time.

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

D3- Developing the student's ability to dialogue and discuss.

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

10. Course structure

Week Hours Required learning outcomes Name of unit/or subject Teaching method Evaluation method

First 3 Students will learn how to calculate the amount of water required for different uses and how to estimate the future population. The amount of water. A theoretical lecture. A written exam.

Second 3 Students will learn how to choose a pipe material and what are the types of pipe accessories, valves and fittings Pipework materials A theoretical lecture A written exam

III 3 Students will have knowledge about the types and components of water distribution systems and how to analyze these systems using the Hardy-Cross method. Water distribution systems, theoretical lecture, written exam

IV 6 Students will have knowledge about the types of pumping stations and pumps and how to choose appropriate pumps according to the characteristics of the flow system. Water pumping stations, theoretical lecture, written exam

Fifth

Sixth 3 Students will learn what are the types of water intake facilities and how to design these facilities. Water intake, theoretical lecture, written exam

VII 3 Students will have knowledge about types of water sources, water impurities and what are the components of a conventional water treatment plant. They will also learn how to design a rapid mixing unit Water treatment: introduction and rapid mixing unit A theoretical lecture and a written exam

VIII 3 Students will have knowledge about the coagulation process, types of coagulants, how to determine the required coagulant dose, and how to design a chemical feed system. Water treatment: coagulation process, theoretical lecture, written exam

IX 6 Students will have knowledge about the flocculation process, types of flocculation units and how to design a flocculation unit. Water Treatment: Flocculation Unit, Theoretical Lecture, Written Exam

The tenth

11th 3 Students will have knowledge about introduction to deposition process, types of deposition processes and efficiency of separate and flocculated deposition processes. Water treatment: sedimentation process, theoretical lecture, written exam

Twelfth 3 Students will learn about the types of sedimentation tanks, the components of sedimentation tanks, and how to design a sedimentation unit. Water treatment: sedimentation unit, theoretical lecture My liberation has come

Thirteenth 6 Students will have knowledge about types of water filters and how to design a filtration unit Water treatment: filtration unit Theoretical lecture Written exam

fourteenth

XV 3 Students will have knowledge about the types of water disinfectants and how to calculate the dosage of the disinfectant. Water Treatment: Sterilization Unit, Theoretical Lecture and Written Exam

11. Infrastructure

1- Required Text Books 1. Steel, E. W. and McGhee, T. J., “Water supply and sewerage”, McGraw-Hill KOGAKUSHA, LTD, 1979.

2- Main references (sources) 1. Barut, E.E., “Water treatment plant design”, 4th Ed., McGraw-Hill, Inc., 2005.

2. Vissman, W., Hammer, M. and Perez, E. M., “Water supply and pollution control”, 8th Ed., Pearson Education Limited, 2014.

3. Binnie, C. and Kimber, M., “Basic water treatment”, 5th Ed., Thomas Telford Limited, 2013.

Recommended books and references (scientific journals, reports,...) and reliable websites.

Library locations in some international universities.

B - Electronic references, Internet sites

12. Course development plan

The course is considered comprehensive in proportion to its scheduled hours

The course is completed according to the number of hours specified for it

Course description form

Course description

The model provides a brief description of the main features of the course and the academic outcomes that the typical student is expected to achieve if he takes advantage of the educational opportunities available for the course. Compare with the program description.

1. The educational institution, University of Maysan

2. Scientific Department/Center, Civil Engineering Department

3. Course name/code, construction methods

4. Available forms of attendance: physical or electronic

5. Semester/year, first semester/fourth stage

6. The total number of study hours is 45 hours

7. The date this description was prepared is January 2025

8. Course objectives

The course aims to prepare the student to be familiar with the necessary information required in the civil engineer on site, such as the basic procedures and steps in implementing projects, commissioning, and managing construction equipment.

9. Course outcomes and teaching, learning and evaluation methods

A- Cognitive objectives

A1- Study the details of the costs resulting from owning and operating construction equipment

A2- Knowing the type of equipment and machines suitable for excavation and earth filling works

A3- Knowing the methods of calculating the productivity of various construction equipment

A4- Forces, moments and details related to concrete formwork

B - The skills objectives of the course.

B1 - Applying the calculation of the costs of owning and operating construction equipment

B2 - Calculate the productivity of various construction equipment

B3 - Designing molds for concrete works

Teaching and learning methods

• Scientific and research skills are developed through teaching and learning activities.

• Analytical and problem-solving skills are developed further through a set of problems prepared by lecturers, through small study groups, and all submitted work is evaluated and responded to.

Evaluation methods

• Interaction within the lecture.

• Homework and reports.

• Short tests (Quizzes).

• Semester and final exams.

C- Emotional and value goals.

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

C2- Response: Monitoring the extent of the student's interaction with the material displayed on the screen.

C3- Interest: Following up on the interest of the student who interacted most with the presented material, by increasing this interaction by requesting other programs and applications to display it.

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

C5- Forming valuable behavior: meaning that the student reaches the top of the emotional ladder and has a stable level in the lesson and does not become lazy or fidgety.

Teaching and learning methods

• The usual theoretical presentation method using a whiteboard and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• The theoretical presentation method using the (data show) device and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• Laboratory presentation method using special devices to measure different properties of the material under experiment.

Evaluation methods

• Direct questions (how and why) of the topic during the theoretical and practical lecture.

• Sudden exams during the theoretical and practical lecture.

• Quarterly exams for the theoretical and practical aspects.

• Final exams for the theoretical and practical aspects.

D - Transferable general and qualifying skills (other skills related to employability and personal development).

D1- Developing the student's ability to perform assignments and submit them on time.

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

D3- Developing the student's ability to dialogue and discuss.

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

10. Course structure

Week Hours Required learning outcomes Name of unit/or subject Teaching method Evaluation method

The first 3: The cost of ownership, the cost of extinction, a theoretical lecture, a written exam

The second 3: The cost of ownership, the cost of insurance, taxes, storage, and investment. A theoretical lecture. A written exam.

Third 3 Operating costs The cost of fuel and lubricants A theoretical lecture A written exam

Fourth 3: Operating costs, maintenance costs, tires, and the operator. A theoretical lecture and a written exam

Fifth 3 Replacement and useful life: Finding the economic life of equipment. A theoretical lecture. A written exam.

VI 3 Destiny Construction equipment, calculating the obstacles that hinder the operation of the equipment, a theoretical lecture, a written exam

Seventh 3 Capacity of construction equipment, finding the actual horsepower and traction force, theoretical lecture, written exam

Eighth 3 Earthworks equipment Shrinkage and swelling in the soil, theoretical lecture, written exam

Ninth 3: Soil improvement: Choosing the appropriate equipment for soil improvement and finding the appropriate equipment. A theoretical lecture and a written exam

Tenth 3 Traction equipment, types and operation of tractors, theoretical lecture, written exam

Eleventh 3, scrapers, types, work, and productivity of skimmers, theoretical lecture, written exam

Twelfth 3 Earth moving equipment, productivity calculation and selection of earth moving equipment, theoretical lecture, written exam

Thirteenth 3 Soil Loading Types and Productivity of Soil Loading Equipment A theoretical lecture and a written exam

Fourteenth 3 Soil excavation equipment, types and productivity of soil excavation equipment, theoretical lecture, written exam

Fifteenth 3 Concrete work molds, mold design, theoretical lecture, written exam

11. Infrastructure

1- Required textbooks 1. Purifoy, “Planning, Equipment, and Construction Methods,” translated by Muhammad Ayoub Sabri Al-Azzi

2- Main references (sources)

Recommended books and references (scientific journals, reports,...) and reliable websites.

Library locations in some international universities.

B - Electronic references, Internet sites

12. Course development plan

Course description form

Course description

The model description provides a brief description of the main features of the course and the academic outcomes that the model student is expected to achieve if he takes advantage of the learning opportunities available for the course. Compare with the program description.

1. The educational institution, University of Maysan

2. Scientific Department/Center, Civil Engineering Department

3. Name/code of the course Foundation Engineering-2

4. Available forms of attendance: physical or electronic

5. Semester/year, second semester/fourth stage

6. The total number of study hours is 60 hours

7. The date this description was prepared is January 2025

8. Course objectives

The course aims to

• Structural design of shallow foundations.

• Knowing the maximum bearing capacity of individual piles and groups of piles.

• Knowledge of the stability of retaining walls.

• Knowledge of the designs of structural members for supported excavations.

9. Course outcomes and teaching, learning and evaluation methods

A- Cognitive objectives

A1- Knowledge of the structural design of individual, combined, and mat shallow foundations.

A2- Knowing the maximum bearing capacity of individual piles and groups of piles.

A3- Knowledge of the stability of retaining walls (stable and bonded plate piles).

A4- Knowledge of the design of structural members in supported excavations.

B - The skills objectives of the course.

B1 - Determine the appropriate type of foundation for buildings.

B2 - Structural design of shallow foundations.

B3 - Determine the ability of piles to bear the building loads.

B4 - Determine the stability of the retaining walls.

Teaching and learning methods

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

Evaluation methods

• Interaction within the lecture.

• Homework and reports.

• Short tests (Quizzes).

• Semester and final exams.

C- Emotional and value goals.

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

C2- Response: Monitoring the extent of the student's interaction with the material displayed on the screen.

C3- Interest: Following up on the interest of the student who interacted most with the presented material, by increasing this interaction by requesting other programs and applications to display it.

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

C5- Forming valuable behavior: meaning that the student reaches the top of the emotional ladder and has a stable level in the lesson and does not become lazy or fidgety.

Teaching and learning methods

• The usual theoretical presentation method using a whiteboard and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• The theoretical presentation method using the (data show) device and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• Laboratory presentation method using special devices to measure different properties of the material under experiment.

Evaluation methods

• Direct questions (how and why) of the topic during the theoretical and practical lecture.

• Sudden exams during the theoretical and practical lecture.

• Quarterly exams for the theoretical and practical aspects.

• Final exams for the theoretical and practical aspects.

D - Transferable general and qualifying skills (other skills related to employability and personal development).

D1- Developing the student’s ability to perform assignments and submit them on time.

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

D3- Developing the student's ability to dialogue and discuss.

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

10. Course structure

Week Hours Required learning outcomes Name of unit/or subject Teaching method Evaluation method

The first 4 are individual foundations

Foundations under eccentric loads, structural design for shallow foundations, theoretical lecture, written exam

The second 4 rectangular common foundations

The joint foundations are trapezoidal in design Construction of shallow foundations, theoretical lecture, written exam

Third 4 toric foundations

Mat foundations, structural design for shallow foundations, theoretical lecture, written exam

Fourth: 4 foundations of the pillars

Introduction, definition, uses, types, selection, design rules, foundations of pillars, theoretical lecture, written exam

Fifth 4: The endurance of the pile, the foundations of piles, a theoretical lecture, a written exam

Sixth 4: Durability of the side cover of the pile, foundations of piles, theoretical lecture, written exam

Seventh 4 pillar totals

Group efficiency

Sustainability of pile groups, foundations of piles, theoretical lecture, written exam

Eighth 4 The landing of the group of pillars. The foundations of the pillars. A theoretical lecture. A written exam

Ninth 4: Distribution of loads on the pile group

Negative surface friction, foundations of pillars, theoretical lecture, written exam

x 4 Lateral soil pressure

Coulomb's theory

Rankine's theory

Types of retaining walls

Safety factor

Solid slab piles in granular soils, soil support structures, theoretical lecture, written exam

Eleventh 4: Single slab piles in cohesive soils

Bonded slab piles, soil support structures, theoretical lecture, written exam

Twelfth 4 The bearing capacity of the mounting blocks, and determining their locations

Excavations supported from the outside, soil support structures, theoretical lecture, written exam

Thirteenth 4 Design of various support system vehicles

Slope stability

Types of slides, soil supporting structures, theoretical lecture, written exam

XIV 4 Unlimited slopes

The method of the angle of internal friction equal to zero, stability of slopes, theoretical lecture, written exam

XV 4 triangular section

Slide method, slope stability, theoretical lecture, written exam

11. Infrastructure

1- Required textbooks Foundation Analysis and Design, 5th Ed, Bowles, 1996.

2- Main references (sources)

Recommended books and references (scientific journals, reports,....) Principles of Foundation Engineering, 9th Ed, Das, 2019.

B - Electronic references, Internet sites, and reliable electronic sites.

Library locations in some international universities.

12. Course development plan

Course description form

Course description

The course provides basic information for the design of joists made of plates, the design of iron structural members subjected to tensile forces, the structural members subject to compression, and the design of column bases.

1. The educational institution, University of Maysan
2. Scientific Department/Center, Civil Engineering Department
3. Name/code of the course Design of Steel Structures/CE423
4. Available forms of attendance: physical or electronic
5. Semester/year, second semester/fourth stage
6. The total number of study hours is 45 hours
7. The date this description was prepared is January 2025
8. Course objectives

Introducing the method of designing an iron joist made of plates.

Designs members subjected to tension.

Design of members subjected to compression.

Design of column bases.

9. Course outcomes and teaching, learning and evaluation methods

A- Cognitive objectives

A1- Clarifying the basic concepts of design.

A2- Acquiring skills in designing members of steel structures subjected to tensile or compressive forces.

A3- Identify the design of links and column bases.

B - The skills objectives of the course.

B1 - The ability to design members of steel structures subjected to tension or compression.

B2 - Ability to design plate joists.

B3 - The ability to design column bases.

Teaching and learning methods

• Readings, self-learning, seminars.

• Exercises and activities in the lecture.

• Homework.

• Directing students to some websites to benefit and develop capabilities.

• Conducting discussion circles to explain and analyze a specific issue and find solutions to it.

Evaluation methods

• Interaction within the lecture.

• Homework and reports.

• Short tests (Quizzes).

• Semester and final exams.

C- Emotional and value goals.

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

C2- Response: Monitoring the extent of the student's interaction with the material displayed on the screen.

C3- Interest: Following up on the interest of the student who interacted most with the presented material, by increasing this interaction by requesting other programs and applications to display it.

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

C5- Forming valuable behavior: meaning that the student reaches the top of the emotional ladder and has a stable level in the lesson and does not become lazy or fidgety.

Teaching and learning methods

• The usual theoretical presentation method using a whiteboard and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• The theoretical presentation method using the (data show) device and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• Laboratory presentation method using special devices to measure different properties of the material under experiment.

Evaluation methods

• Direct questions (how and why) of the topic during the theoretical and practical lecture.

• Sudden exams during the theoretical and practical lecture.

• Quarterly exams for the theoretical and practical aspects.

• Final exams for the theoretical and practical aspects.

D - Transferable general and qualifying skills (other skills related to employability and personal development).

D1- Developing the student's ability to perform and submit assignments in AD And return it.

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

D3- Developing the student's ability to dialogue and discuss.

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

10. Course structure

Week Hours Required learning outcomes Name of unit/or subject Teaching method Evaluation method

The first 3: Design of plate girders, theoretical questions and discussion

The second 3: Designing the moment capacity, theoretical + tense, questions and discussion

Third 3: Designing the leg of the section, Web design, theoretical questions and discussion

Fourth 3: Design of leg braces Stiffener design Theoretical + tensional questions, discussion, and quiz

Fifth 3 Tension members Theoretical questions and discussion

Sixth 3 Members with decentralized connections Members with eccentric connections Theoretical + tenseral questions and discussion

Seventh 3 Tension members with torque Tension members with moments Theoretical questions and discussion

Eighth: 3 Compound tension members, theoretical questions and discussion

Ninth 3 Compression members Theoretical questions and discussion

Tenth: 3 Axially loaded compression members Theoretical questions and discussion

Eleventh 3 Built-up columns Theoretical questions and discussion

Twelfth 3 Members subjected to compression with torque Members subjected to compression plus bending Theoretical + tensional questions and discussion

Thirteenth 3 Moments in columns of simple structures Moments in columns of simple constructions Theoretical questions, discussion, and advice

Fourteenth 3 Design of column base plate Theoretical questions and discussion

Fifteenth 3 Design of column base plate Theoretical + tensional questions and discussion

11. Infrastructure

1- Required textbooks: Structural steelwork design to limit state theory. by D. Lam

2- Main references (sources) BS 5950 part-1

Recommended books and references (scientific journals, reports,....) Steelwork design guide to BS 5950-1

B - Electronic references, Internet sites

12. Course development plan

Course description form

Course description

The course provides general information about the water cycle and its relationship to everything that affects human life, including the abundance of water suitable for consumption, as well as methods for calculating its quantities. The course also provides information about measuring rainfall amounts, measuring the level and drainage of rivers, and inferring or predicting future rainfall amounts. Also the relationship of rain to the design of drainage networks and rainwater drainage in cities. As well as information about engineering precautions to ward off the potential risk of flooding.

1. The educational institution, University of Maysan

2. Scientific Department/Center, Civil Engineering Department

3. Name/code of the engineering hydrology course

4. Available forms of attendance: physical or electronic

5. Semester/year, second semester/fourth stage

6. The total number of study hours is 60 hours

7. The date this description was prepared is January 2025

8. Course objectives

The (Engineering Hydrology) course aims to introduce the civil engineering student in the fourth stage to various water sources, especially water sources coming from the atmosphere in the form of precipitation in all its forms, especially rain. Also, defining the relationship of these precipitations to the abundance of fresh water through studying methods for 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 seeping into the ground, and the relationship of all of this to river drainage and ways to benefit from it in the form of storage in fresh water bodies such as lakes and marshes. Also among the objectives of the course is to introduce the student to groundwater, how to calculate its quantities, and ways to benefit from it and preserve it as one of the important water sources.

9. Course outcomes and teaching, learning and evaluation methods

A- Cognitive objectives

A1- Clarifying the basic concepts of water science (hydrology) and their relationship to civil engineering.

A2- Acquiring skills in designing rainwater drainage networks.

A3- Acquiring basic skills in measuring rainfall amounts and predicting their future and their relationship to river drainage and annual water quantities.

A4- Gaining a basic understanding of engineering designs and their applications regarding rivers, dams and culverts

Bridges as well as flood protection facilities.

B - The skills objectives of the course.

B1 - The ability to understand the relationship of rain to hydro-engineering phenomena.

B2 - The ability to find solutions to extreme natural weather phenomena such as floods.

B3 - Writing detailed scientific reports for water calculations.

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

Teaching and learning methods

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

Evaluation methods

- Interaction within the lecture.
- Homework and reports.
- Short tests (Quizzes).
- Semester and final exams.

C- Emotional and value goals.

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

C2- Response: Monitoring the extent of the student's interaction with the material displayed on the screen.

C3- Interest: Following up on the interest of the student who interacted most with the subject Displayed, by increasing this interaction by requesting other programs and applications to be displayed.

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

C5- Forming valuable behavior: meaning that the student reaches the top of the emotional ladder and has a stable level in the lesson and does not become lazy or fidgety.

Teaching and learning methods

● The usual theoretical presentation method using a whiteboard and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

● The theoretical presentation method using the (data show) device and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

● Laboratory presentation method using special devices to measure different properties of the material under experiment.

Evaluation methods

● Direct questions (how and why) of the topic during the theoretical and practical lecture.

● Sudden exams during the theoretical and practical lecture.

● Quarterly exams for the theoretical and practical aspects.

● Final exams for the theoretical and practical aspects.

D - Transferable general and qualifying skills (other skills related to employability and personal development).

D1- Developing the student's ability to perform assignments and submit them on time.

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

D3- Developing the student's ability to dialogue and discuss.

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

10. Course structure

Week Hours Required learning outcomes Name of unit/or subject Teaching method Evaluation method

The first 4 Introduction is theoretical

The second 4 hydrological processes is theoretical

Third 4 Precipitations Theoretical Theoretical

The fourth 4 rain gauges is theoretical

Fifth 4 Calculating rain over the area is theoretical

Sixth 4 Evaporation and transpiration theoretical theoretical

Seventh 4 Leakage and penetration Theoretical Theoretical

Eighth: 4 methods of measuring discharge

My theory is my theory

Ninth 4 The appreciation curve is theoretical

10th 4 Standard Hydrograph Theoretical Theoretical

Eleventh 4 Theoretical Theoretical

Twelfth 4 Hydrograph analysis is theoretical

Thirteenth 4 theoretical theory

Fourteenth 4 The method of collecting coordinates is theoretical

Fifteenth 4 Theoretical Theoretical

11. Infrastructure

1- Required textbooks for engineering hydrology, written by Dr. Nizar Al-Sabti

2- Main references (sources): Engineering hydrology/ Subramanya 2008

Recommended books and references (scientific journals, reports,...).

B - Electronic references, Internet sites, and reliable electronic sites.

Library locations in some international universities

12. Course development plan

Course description form

Course description

The design and analysis of paving layers deals with the study of different types of paving, such as flexible paving, rigid or rigid paving, and the study of the granular materials involved in creating these types of paving, their properties, behaviors, and specifications.

1. The educational institution, University of Maysan

2. Scientific Department/Center, Civil Engineering Department

3. Name/code of the course Design and analysis of paving layers - 425

4. Available forms of attendance: physical or electronic

5. Semester/year, first semester/fourth stage

6. The total number of study hours is 45 hours

7. The date this description was prepared is January 2025

8. Course objectives

• The study of this course aims to present the basic element of paving design (flexible and rigid), as well as analyze all the stresses and loads imposed on the paving and take into account the selection of materials used in constructing the sidewalk.

9. Course outcomes and teaching, learning and evaluation methods

A- Cognitive objectives

A1- Knowledge and understanding of tiling design and analysis.

A2- Bituminous materials, natural asphalt, asphalt cement components, and asphalt tests.

A3- Study the characteristics of different aggregates, including size, gradation, and mixing methods, to design the dry mix.

A4- Designing the bitumen mixture with the aim of designing the asphalt mixture and studying the distribution of stresses through the paving layers, while calculating the stresses and precipitation of the flexible paving.

B - The skills objectives of the course.

B1 - Marshall mix design determines the optimal bitumen content for the flexible paving mix.

B2 - Flexible paving design methods (CBR method and AASHTO design method).

B3 - Types of solid paving, types of joints in solid paving, and temperature stresses.

Teaching and learning methods

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

Evaluation methods

• Interaction within the lecture.

• Homework and reports.

• Short tests (Quizzes).

• Semester and final exams.

C- Emotional and value goals.

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

C2- Response: Monitoring the extent of the student's interaction with the material displayed on the screen.

C3- Interest: Following up on the interest of the student who interacted most with the presented material, by increasing this interaction by requesting other programs and applications to display it.

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

C5- Forming valuable behavior: meaning that the student reaches the top of the emotional ladder and has a stable level in the lesson He is lazy and does not fidget.

Teaching and learning methods

• The usual theoretical presentation method using a whiteboard and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• The theoretical presentation method using the (data show) device and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• Laboratory presentation method using special devices to measure different properties of the material under experiment.

Evaluation methods

• Direct questions (how and why) of the topic during the theoretical and practical lecture.

• Sudden exams during the theoretical and practical lecture.

• Quarterly exams for the theoretical and practical aspects.

• Final exams for the theoretical and practical aspects.

D - Transferable general and qualifying skills (other skills related to employability and personal development).

D1- Developing the student’s ability to perform assignments and submit them on time.

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

D3- Developing the student's ability to dialogue and discuss.

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

10. Course structure

Week Hours Required learning outcomes Name of unit/or subject Teaching method Evaluation method

The first 3 Bituminous Materials Test for Asphalt, a theoretical lecture and an oral exam

Second 3 Aggregate Physical Properties of Aggregate Theoretical lecture Oral exam

The third: 3 Gradation Methods of Blending, theoretical lecture, written exam

Fourth 3 Bituminous Mix Design The objective of Mix Design A theoretical lecture Oral exam

Fifth 3 Marshal Mix Design Marshall Stability and Flow, theoretical lecture, written exam

Sixth 3 Stress distribution through the pavement Calculation of stresses and deflections A theoretical lecture A written exam

Seventh 3 Introduction to pavement design Types of pavements A theoretical lecture and an oral exam

Eighth 3 Flexible pavement design methods CBR Method theoretical lecture written exam

Ninth 3 Flexible pavement design methods AASHTO Design Method theoretical lecture written exam

Tenth 3 Flexible pavement design methods Cumulative ESAL theoretical lecture written exam

Eleventh 3 Rigid Pavement Rigid Pavement Types Theoretical lecture Oral exam

Twelfth 3 Rigid Pavement Types of Joints in Rigid Pavement Theoretical lecture Oral exam

Thirteenth 3 Rigid Pavement Critical load position Theoretical lecture Written exam

Fourteenth 3 Rigid Pavement Temperature Stresses, theoretical lecture, written exam

Fifteenth 3 Check Points Rigid Pavement Theoretical lecture Written exam

11. Infrastructure

1- Required textbooks 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- Main references (sources) Hand book: Handbook of Transportation Engineering. By Myer Kutz.2004.

Recommended books and references (scientific journals, reports,....) AASHTO (1993)

B - Electronic references, Internet sites

12. Course development plan

It is possible to add new topics with examples that bring closer understanding and comprehension of the material

Course description form

Course description

This paper provides a brief description of the main features of the course and the academic outcomes that a typical student is expected to achieve if he takes advantage of the learning opportunities available for the course.

1. The educational institution, University of Maysan

2. Scientific Department/Center, Civil Engineering Department

3. Course name/code Sanitary Engineering/CE426

4. Available forms of attendance: physical or electronic

5. Semester/year, second semester/fourth stage

6. The total number of study hours is 45 hours

7. The date this description was prepared is January 2025

8. Course objectives

The course aims to present materials related to sewage systems and describe and design a sewage treatment plant.

9. Course outcomes and teaching, learning and evaluation methods

A- Cognitive objectives

A1- Determine the quantities of rainwater and sewage.

A2- Design of sewerage networks.

A3- Design of wastewater treatment units.

B - The skills objectives of the course.

B1 – Mathematical solution to the problems governing the design of sewage systems and wastewater treatment plants.

B2 - Excel program to facilitate solving repetitive problems.

Teaching and learning methods

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

Evaluation methods

• Interaction within the lecture.

• Homework and reports.

• Short tests (Quizzes).

• Semester and final exams.

C- Emotional and value goals.

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

C2- Response: Monitoring the extent of the student's interaction with the material displayed on the screen.

C3- Interest: Following up on the interest of the student who interacted most with the presented material, by increasing this interaction by requesting other programs and applications to display it.

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

C5- Forming value behavior: in a sense Until the student reaches the top of the emotional ladder, he will have a stable level in the lesson and will not be lazy or fidgety.

Teaching and learning methods

• The usual theoretical presentation method using a whiteboard and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• The theoretical presentation method using the (data show) device and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• Laboratory presentation method using special devices to measure different properties of the material under experiment.

Evaluation methods

• Direct questions (how and why) of the topic during the theoretical and practical lecture.

• Sudden exams during the theoretical and practical lecture.

• Quarterly exams for the theoretical and practical aspects.

• Final exams for the theoretical and practical aspects.

D - Transferable general and qualifying skills (other skills related to employability and personal development).

D1- Developing the student's ability to perform assignments and submit them on time.

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

D3- Developing the student's ability to dialogue and discuss.

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

10. Course structure

Week Hours Required learning outcomes Name of unit/or subject Teaching method Evaluation method

The first 3 students will learn how to calculate the quantities of wastewater and rainwater, the quantity of wastewater, a theoretical lecture, and a written exam

II 6 Students will have knowledge about types of septic systems, components of septic systems, mechanisms of flow in septic systems and the formula that governs flow in septic systems. Flow in wastewater pipes, theoretical lecture, written exam

the third

Fourth 6 Students will learn how to design sewage systems and rainwater systems, design drainage systems, theoretical lecture, and written exam

Fifth

VI 3 Students will have knowledge about wastewater pollutants and wastewater treatment processes. Wastewater treatment: general description, theoretical lecture, written exam

Seventh 3 Students will learn how to design a screening unit for wastewater treatment: a screening unit, a theoretical lecture, and a written exam

Eighth 3 Students will learn how to design a sand removal unit Wastewater treatment: Sand removal unit A theoretical lecture A written exam

Ninth

10th 3

Students will learn how to design a primary sedimentation unit

Wastewater Treatment: Primary Sedimentation Unit, Theoretical Lecture and Written Exam

Eleventh 6 Students will learn how to design an activated sludge system, biological treatment of wastewater using the activated sludge method, a theoretical lecture, a written exam.

twelveth

Thirteenth 6 Students will learn how to design a drip filter system, biological treatment of wastewater using the drip filter method, a theoretical lecture, a written exam.

fourteenth

Fifteenth 3 Students will learn how to design a secondary sedimentation unit, a secondary sedimentation unit, a theoretical lecture, and a written exam

11. Infrastructure

1- Required Text Books 1. Steel, E. W. and McGhee, T. J., “Water supply and sewerage”, McGraw-Hill KOGAKUSHA, LTD, 1979.

2- Main references (sources) 4. Vissman, W., Hammer, M. and Perez, E. M., “Water supply and pollution control”, 8th Ed., Pearson Education Limited, 2014.

5. Mays, L.W., “Storm water collection systems design handbook”, The McGraw-Hill Companies, 2004.

Recommended books and references (scientific journals, reports,....) 1. Davis. M.L., “water and wastewater engineering”, McGraw-Hill Companies, Inc, 2010.

B - Electronic references, Internet sites

12. Course development plan

a. Adding processes related to sludge treatment and reuse.

B. Provide a brief description of methods for reusing treated wastewater.

Course description form

Course description

Estimation is the art of estimating quantities and construction items in terms of prices and construction duration to the nearest reasonable number, usually before starting work so that the expected financial amounts can be allocated for its implementation.

Estimation is considered one of the basic tasks of the practicing engineer, through which estimated calculations are made of the cost of construction works and projects. Therefore, the employer or the entity financing the project gives special importance to the accuracy of cost estimates because of their impact on determining the making of executive decisions regarding projects and working to provide the necessary amounts for them. For this reason, cost estimation processes are considered a source for testing the engineer's professional integrity as well as his scientific competence.

1. The educational institution, University of Maysan

2. Scientific Department/Center, Civil Engineering Department

3. Name/code of the engineering estimation and specifications course

4. Available forms of attendance: physical or electronic

5. Semester/year, second semester/fourth stage

6. The total number of study hours is 45 hours

7. The date this description was prepared is January 2025

8. Course objectives

- The student obtains experience in using heavy equipment in all civil engineering works

- The student's ability to prepare the necessary statements for projects, whether buildings or roads.

- The student becomes familiar with Iraqi and American specifications, as well as general conditions and contracting contracts.

- Also, the student will be able to make rough and detailed estimates of buildings, and determine the measurement method

appropriate, and perform an AD analysis Edit for different business elements. He will also be able to write specifications

Technical work for various civil engineering works.

Finally, he will obtain accurate knowledge of the types of contracts and the general and special conditions related to them.

9. Course outcomes and teaching, learning and evaluation methods

A- Cognitive objectives

A1- Clarifying the basic concepts in calculating quantities of construction materials.

A2- Acquiring skills in dealing with problems and issues related to tables of quantities.

A3- Acquiring basic skills as an introduction to estimating construction buildings.

A4- Gaining a basic understanding of how to accurately estimate various construction materials.

B - The skills objectives of the course.

B1 - The ability to understand the estimation mechanism and geometric specifications.

B2 - The ability to think about addressing a specific problem or issue.

B3 - Writing scientific reports.

B4 - The ability to gain experience in dealing with solving construction problems related to calculating quantities of construction materials.

Teaching and learning methods

• Readings, self-learning, seminars.

• Exercises and activities in the lecture.

• Homework.

• Directing students to some websites to benefit and develop capabilities.

• Conducting discussion circles to explain and analyze a specific issue and find solutions to it.

Evaluation methods

• Interaction within the lecture.

• Homework and reports.

• Short tests (Quizzes).

• Semester and final exams.

C- Emotional and value goals.

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

C2- Response: Monitoring the extent of the student's interaction with the material displayed on the screen.

C3- Interest: Following up on the interest of the student who interacted most with the presented material, by increasing this interaction by requesting other programs and applications to display it.

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

C5- Forming valuable behavior: meaning that the student reaches the top of the emotional ladder and has a stable level in the lesson and does not become lazy or fidgety.

Teaching and learning methods

• Multiple choice questions.

• Completion questions.

• Understanding scientific material and engineering principles.

• Apply knowledge in a simple way to interpret data, diagnose and solve problems

Evaluation methods

• Active participation in the classroom is evidence of the student's commitment and responsibility.

• Commitment to the specified deadline for submitting the assignments and research required of the student.

• Semester and final tests express commitment and cognitive and skill achievement.

D - Transferable general and qualifying skills (other skills related to employability and personal development).

D1- Developing the student's ability to perform assignments and submit them on time.

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

D3- Developing the student's ability to dialogue and discuss.

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

10. Course structure

Week Hours Required learning outcomes Name of unit/or subject Teaching method Evaluation method

First 3 General Introduction Guessing (Introduction)

Theoretical questions and discussion

The second: 3 types of approximate estimation. Estimating the construction cost. Theoretical + tense. Questions, discussion, and advice.

Third 3 Detailed guesswork Detailed guesswork Theoretical questions and discussion

Fourth 3: Calculating the quantity of construction materials per meter length, square meter, or cube. Materials in the unit of measurement for construction works. Theoretical + tense. Questions, discussion, and advice.

Fifth 3 Calculating the quantity of construction materials per meter length, square meter, or cube. Materials in the unit of measurement for construction work. Theoretical questions and discussion.

Sixth: 3 types of coatings and their calculations. Covering walls with ceramic, theoretical + tense, questions and discussion

Seventh: 3 flattening methods and calculations, theoretical flattening, questions and discussion

Eighth 3 How to guess all the construction paragraphs Guessing the sections of the construction work of buildings Theoretical Questions, discussion and coz

Ninth: 3 Calculations of the quantity of construction materials in the foundations. Pouring concrete foundations. Theoretical + tensional questions and discussion.

Tenth 3: The wooden block and all the accounts related to it. Wooden block work. Theoretical questions and discussion

Eleventh 3 Estimating the quantity of different types of reinforcing steel in types of foundations Estimating the quantities of reinforcing steel for theoretical foundations Questions and discussion

Twelfth 3 Estimating the quantity of different types of reinforcing steel in the types of foundations Estimating the quantities of reinforcing steel for foundations Theoretical + tensional questions and discussion

Thirteenth 3 Calculations of concrete and steel reinforcement in bridges and roofs Casting of bridges and roofs Theoretical Questions, discussion and advice

Fourteenth 3 Calculations of concrete and steel reinforcement in bridges and roofs Casting of bridges and roofs Theoretical questions and discussion

Fifteenth 3 Calculations of concrete and reinforcing steel in box channels, Box Culvert, theoretical + tensional, questions and discussion

11. Infrastructure

1- Required textbooks 1. Estimation and Specifications, Medhat Fadeel Fathallah, fourth revised edition, 1985.

2. Quantity Accounting, Eng. Fawaz Muhammad Al-Qudah, Al-Balqa Applied University, Jordan, first edition, 2006.

3. Calculating Quantities and Specifications, Eng. Ahmed Hussein Abu Odeh, Civil Engineering Series (1), Part One, Al-Balqa Applied University/Faculty 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- Main references (sources) Engineering Estimation and costing-Journal

Recommended books and references (scientific journals, reports,...)

B - Electronic references, Internet sites

12. Course development plan

Course description form

Course description

The model description provides a brief description of the main features of the course and the academic outcomes that the model student is expected to achieve if he takes advantage of the learning opportunities available for the course. Compare with the program description.

1. The educational institution, University of Maysan
2. Scientific Department/Center, Civil Engineering Department
3. Name/code of the course: Professional Ethics
4. Available forms of attendance: physical or electronic
5. Semester/year, second semester/fourth stage
6. The total number of study hours is 30 hours
7. The date this description was prepared is January 2025
8. Course objectives

The course aims to enhance the ethics of engineers from a professional standpoint from several axes, the most important of which is the religious and societal axis, given that ethics is something acquired from childhood, in addition to linking these ethics to all work facilities (whether engineering or administrative) and the impact of the lack of a moral sense among the worker on the continued development of countries due to... Draining economic resources through administrative or engineering fraud, which leads to the failure of engineering projects that may lead to disasters that lead to the lives of citizens.

9. Course outcomes and teaching, learning and evaluation methods

A- Cognitive objectives

A1- Study the concept of professional ethics in its general, linguistic, and terminological sense and the importance of those ethics.

A2- Identify the history of ethical engineering codes, their development, and their interrelationship with each other.

A3- List some engineering disasters that occurred due to a lack of professional ethics.

B - The skills objectives of the course.

B1 - Organize the work well and avoid chaos that does not lead to reaping its fruits.

B2- Monitor work by providing a good supervision system.

Teaching and learning methods

• The acquired professional ethics are strengthened by recalling Qur'anic verses or a noble Prophetic hadith, or even mentioning some global examples of positive engineering profession codes and refining these ethics.

Evaluation methods

• Interaction within the lecture.

• Homework and reports.

• Short tests (Quizzes).

• Semester and final exams.

C- Emotional and value goals.

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

C2- Response: Monitoring the extent of the student's interaction with the material displayed on the screen.

C3- Interest: Following up on the interest of the student who interacted most with the material presented, by increasing this interaction by requesting other programs and applications to display it.

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

C5- Forming valuable behavior: meaning that the student reaches the top of the emotional ladder and has a stable level in the lesson and does not become lazy or fidgety.

Teaching and learning methods

• The usual theoretical presentation method using a whiteboard and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• The theoretical presentation method using the (data show) device and based on the method (how and why) of the subject and according to the teaching curriculum for the subject.

• Laboratory presentation method using special devices to measure different properties of the material under experiment.

Evaluation methods

• Direct questions (how and why) of the topic during the theoretical and practical lecture.

• Sudden exams during the theoretical and practical lecture.

• Quarterly exams for the theoretical and practical aspects.

• Final exams for the theoretical and practical aspects.

D - Transferable general and qualifying skills (other skills related to employability and personal development).

D1- Developing the student's ability to perform assignments and submit them on time.

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

D3- Developing the student's ability to dialogue and discuss.

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

10. Course structure

Week Hours Required learning outcomes Name of unit/or subject Teaching method Evaluation method

The first 2, the first lecture, the concept of professional ethics, a theoretical lecture, a written exam

The second 2 The second lecture: The concept of professional ethics, a theoretical lecture, a written exam

Third 2 The third lecture: General components of professional ethics, theoretical lecture, written exam

Fourth 2 The fourth lecture: General components of professional ethics, theoretical lecture, written exam

Fifth 2 The fifth lecture, engineering ethics, theoretical lecture, written exam

Sixth 2 The sixth lecture: History of engineering blogs, theoretical lecture, written exam

Seventh 2 The seventh lecture: History of engineering blogs, theoretical lecture, written exam

Eighth 2 The eighth lecture, engineering disasters, theoretical lecture, written exam

Ninth 2 The ninth lecture Examples of codes of ethics for the engineering profession A theoretical lecture A written exam

Tenth 2 The tenth lecture Examples of codes of ethics for the engineering profession, theoretical lecture, written exam

Eleventh 2 Lecture Eleven Examples of codes of ethics for the engineering profession, theoretical lecture, written exam

Twelfth 2 Twelfth Lecture Examples of codes of ethics for the engineering profession, theoretical lecture, written exam

Thirteenth 2 The thirteenth lecture Examples of codes of ethics for the engineering profession, theoretical lecture, written exam

Fourteenth 2 Lecture Fourteen Blogger Institute of Electrical Engineers theoretical lecture and written exam

Fifteenth 2 The fifteenth lecture, Institute of Electrical Engineers blog, theoretical lecture, written exam

11. Infrastructure

1- Required textbooks on engineering ethics, author: Dr. Nabil Abdel Razzaq

2- Main references (sources)

Recommended books and references (scientific journals, reports,...)

B - Electronic references, Internet sites

12. Course development plan

• When planning or teaching a course, ask yourself:

• What is the level of your students' knowledge and experience?

• What are the topics related to the subject of study of this course that students have previously studied in other courses?

• What do you expect students to achieve from studying the course in terms of knowledge, skills and attitudes..?

• What should students do to study the course that you should prepare them for?

• Will the course teaching (in terms of level, pace and content) meet the needs of students?

• How can flexibility be achieved in course planning to meet unexpected learning needs?