**Ministry of Higher Education and Scientific Research**
**Scientific Supervision and Scientific Evaluation Apparatus**
**Directorate of Quality Assurance and Academic Accreditation**
**Accreditation Department**

# Academic Program and Course Description

## Department of Civil Technologies

**2025**

# Introduction:

The educational program is a well-planned set of courses that include procedures and experiences arranged in the form of an academic syllabus. Its main goal is to improve and build graduates' skills so they are ready for the job market. The program is reviewed and evaluated every year through internal or external audit procedures and programs like the External Examiner Program.

The academic program description is a short summary of the main features of the program and its courses. It shows what skills students are working to develop based on the program's goals. This description is very important because it is the main part of getting the program accredited, and it is written by the teaching staff together under the supervision of scientific committees in the scientific departments.

This guide, in its second version, includes a description of the academic program after updating the subjects and paragraphs of the previous guide in light of the updates and developments of the educational system in Iraq, which included the description of the academic program in its traditional form (annual, quarterly), as well as the adoption of the academic program description circulated according to the letter of the Department of Studies T 3/2906 on 3/5/2023 regarding the programs that adopt the Bologna Process as the basis for their work.

In this regard, we can only emphasize the importance of writing an academic programs and course description to ensure the proper functioning of the educational process.

## Concepts and terminology:

**Academic Program Description:** The academic program description provides a brief summary of its vision, mission and objectives, including an accurate description of the targeted learning outcomes according to specific learning strategies.

**Course Description:** Provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the students to achieve, proving whether they have made the most of the available learning opportunities. It is derived from the program description.

**Program Vision:** An ambitious picture for the future of the academic program to be sophisticated, inspiring, stimulating, realistic and applicable.

**Program Mission:** Briefly outlines the objectives and activities necessary to achieve them and defines the program's development paths and directions.

**Program Objectives:** They are statements that describe what the academic program intends to achieve within a specific period of time and are measurable and observable.

**Curriculum Structure:** All courses / subjects included in the academic program according to the approved learning system (quarterly, annual, Bologna Process) whether it is a requirement (ministry, university, college and scientific department) with the number of credit hours.

**Learning Outcomes:** A compatible set of knowledge, skills and values acquired by students after the successful completion of the academic program and must determine the learning outcomes of each course in a way that achieves the objectives of the program.

**Teaching and learning strategies:** They are the strategies used by the faculty members to develop students' teaching and learning, and they are plans that are

followed to reach the learning goals. They describe all classroom and extra-curricular activities to achieve the learning outcomes of the program.

# Academic Program Description Form

University Name: Al-Furat Al-Awsat Technical University

Faculty/Institute: Technical Institute/Najaf

Scientific Department: Department of Civil Technologies

Academic or Professional Program Name: Soil Mechanics, Concrete Materials

Final Certificate Name: Technical diploma

Academic System: annual

Description Preparation Date:

File Completion Date:

Signature:

Head of Department Name:

Date:

Signature:

Scientific Associate Name:

Date:

The file is checked by:

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:

Date:

Signature:

Approval of the Dean

| 1. **Program Vision** |
| --- |
| Distinction and modernity in qualifying technical cadres in the field of civil technologies scientifically and practically to meet the needs of the labor market. |

| 2. **Program Mission** |
| --- |
| Preparing scientifically and practically qualified human cadres in the field of civil engineering techniques capable of competing in the labor market in accordance with approved international quality standards and development in the field of construction and urbanization. |

| 3. **Program Objectives** |
| --- |
| 1- Working to develop technical work through developing curricula, modernizing laboratories in accordance with internationally approved good laboratory standards, and involving department members in specialized qualification courses.<br>2- Contributing to community service by holding courses and workshops in various civil engineering applications and promoting construction and construction activities at a high level of quality.<br>3- Exchanging theoretical and practical technical expertise with technical institutes and colleges with corresponding specializations and the labor market in the private sector.<br>4-Providing a stimulating environment for learning and training.<br>5- Providing engineering and technical consultations to all departments and institutions of the state and the private sector. |

| 4. **Program Accreditation** |
| --- |
| ABET accredited certification program |

| 5. **Other external influences** |
|---|
| Private and government sector work projects |

| 6. **Program Structure** | | | | |
|---|---|---|---|---|
| **Program Structure** | **Number of Courses** | **Credit hours** | **Percentage** | **Reviews*** |
| **Institution Requirements** | **2** | | | |
| **College Requirements** | **4** | | | |
| **Department Requirements** | **16** | | | |
| **Summer Training** | | | | |
| **Other** | | | | |

* This can include notes whether the course is basic or optional.

| 7. **Program Description** | | | | |
|---|---|---|---|---|
| **Year/Level** | **Course Code** | **Course Name** | **Credit Hours** | |
| The first stage | – | Concrete materials | **theoretical** | **practical** |
| The second stage | – | Soil mechanics | **theoretical** | **practical** |

| 8. **Expected learning outcomes of the program** | |
|---|---|
| **Knowledge** | |
| Learning Outcomes<br>1- Acquiring theoretical and practical knowledge in various scientific curricula in civil engineering specializations. | Learning Outcomes Statement 1 |

| | |
|---|---|
| 2- Reading various plans, drawings and designs in engineering specializations.<br>3- Conducting theoretical calculations for various issues in the field of specialization.<br>4- Conduct on-site soil investigation. | |
| **Skills** | |
| Learning Outcomes<br>1-Field and laboratory tests of soil.<br>2- Classification of soils based on their external appearance.<br>3-Physical soil calculations | Learning Outcomes Statement 2 |
| Learning Outcomes 3 | Learning Outcomes Statement 3 |
| **Ethics** | |
| Learning Outcomes 4 | Learning Outcomes Statement 4 |
| Learning Outcomes 5 | Learning Outcomes Statement 5 |

## 9. Teaching and Learning Strategies

Lecture - laboratory - educational trips - summer methodological training - student projects.

## 10. Evaluation methods

1- Oral exams 2- Written exams 3- Semester exams 4- Final exams 5- Daily evaluation.

## 11. Faculty

**Faculty Members**

| Academic Rank | Specialization | | Special Requirements/Skills (if applicable) | Number of the teaching staff | |
|---|---|---|---|---|---|
| | General | Special | | Staff | Lecturer |

| | | | | | | |
|---|---|---|---|---|---|---|
| Hussein Ali Muhammad | Civil Engineering | Civil Engineering | | | ✓ | |
| Marwa Hamid Abdullah | Civil Engineering | Civil Engineering | | | ✓ | |
| Marwa Fouad Manhar | roads and bridges | roads and bridges | | | ✓ | |
| Zainab Ahmed Abdel | Water resources | Water resources | | | ✓ | |
| Munqidh Sadiq Muhammad | Soil and foundation engineering | Soil and foundation engineering | | | ✓ | |
| Rusul Hussein Ali | Civil Engineering | Geotechnics | | | ✓ | |
| Ahmed Kadem Slmaan | English | English | | | ✓ | |

## Professional Development

**Mentoring new faculty members**

Directing is done through direct meetings and meetings with the department head or direct manager

**Professional development of faculty members**

Academic and professional development for faculty members takes place through courses and workshops held inside and outside the department, conferences, and scientific research.

## 12. Acceptance Criterion

**The central admission system is set by the Ministry and is subject to the institute's differentiation according to the secondary, vocational and preparatory school rates.**

## 13. The most important sources of information about the program

1- Scientific curricula determined by the specialized sectoral committees of the Technical Education Authority.

2- Amendments proposed by subject teachers at a rate not exceeding 20% of the prescribed curriculum and according to the requirements of the labor market and the accredited scientific development taking place in the world currently.
3- ABET Academic Accreditation Program.

## 14. Program Development Plan

1- Working to develop technical education through developing curricula, modernizing laboratories in accordance with internationally approved good laboratory standards, and engaging the department's members in specialized qualifying courses.

2- Contributing to community service by holding courses and workshops in various civil engineering applications and advancing the construction and reconstruction movement at a high level of quality. 3- Exchanging theoretical and practical technical expertise with technical institutes and colleges with corresponding specialization and the labor market in the private sector.

4- Providing an appropriate stimulating environment for learning and training.

5- Providing engineering and technical consultations to all state departments and institutions and the private sector.

The department aims to graduate technical personnel qualified to carry out implementation work related to the fields of civil engineering, such as drawing and implementing plans, monitoring road projects and construction projects, conducting laboratory and field tests, surveying, and calculating quantities and dimensions of civil works projects.

| Program Skills Outline | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Required program Learning outcomes | | | | | | | | | | | |
| Year/ Level | Course Code | Course Name | Basic or optional | Knowledge | | | | Skills | | | | Ethics | | | |
| | | | | A1 | A2 | A3 | A4 | B1 | B2 | B3 | B4 | C1 | C2 | C3 | C4 |
| The first stage | Construction materials | Basic | | ✓ | ✓ | | | ✓ | | ✓ | | ✓ | ✓ | ✓ | ✓ |
| | Engineering mechanics | Basic | | ✓ | | ✓ | | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ |
| | Space (1) | Basic | | | ✓ | | ✓ | ✓ | | ✓ | ✓ | ✓ | | ✓ | |
| | Concrete materials | Basic | | ✓ | | ✓ | | ✓ | ✓ | | ✓ | | ✓ | ✓ | ✓ |
| | mathematics | Basic | | ✓ | | | ✓ | ✓ | | ✓ | | ✓ | | | |
| | Calculator Apps (1) | help | | | ✓ | ✓ | | ✓ | | ✓ | ✓ | | ✓ | ✓ | ✓ |
| | Engineering drawing | Basic | | ✓ | ✓ | | | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Factories | help | | ✓ | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ |
| | Human rights and democracy | General | | | ✓ | ✓ | | ✓ | | | | | ✓ | | ✓ |
| | Technical English | help | | | ✓ | | | ✓ | ✓ | | | | | ✓ | ✓ |
| The second stage | Concrete technology | Basic | | | ✓ | ✓ | ✓ | | ✓ | ✓ | | ✓ | ✓ | ✓ | |
| | Construction techniques | Basic | | ✓ | | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | | | ✓ |
| | Soil mechanics | Basic | | ✓ | ✓ | | | | | ✓ | | ✓ | ✓ | ✓ | |
| | Civil drawing | Basic | | ✓ | | | ✓ | ✓ | | ✓ | | ✓ | | ✓ | ✓ |
| | Area (2) | Basic | | ✓ | ✓ | | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | | ✓ |
| | Construction machines | Basic | | ✓ | | ✓ | | ✓ | | ✓ | ✓ | | ✓ | | ✓ |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Calculator Apps (2) | Basic | | | | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | | ✓ | |
| | Quantity surveying | Basic | | ✓ | | | ✓ | ✓ | | | ✓ | | ✓ | | ✓ |
| | Buildings and factory construction | Basic | | ✓ | ✓ | | | ✓ | ✓ | | ✓ | | | | ✓ |
| | The project | Basic | | ✓ | | | ✓ | ✓ | | ✓ | | ✓ | ✓ | ✓ | |
| | English | help | | ✓ | | | ✓ | | | ✓ | | | ✓ | | ✓ |
| | Baath Party | help | | | | ✓ | ✓ | ✓ | | | | ✓ | | | |
| | crimes | | | | | | | | | | | | | | |

| Notes | Material type | number of units | The number of hours | | | Subject | T |
|---|---|---|---|---|---|---|---|
| | | | M | A | n | | |
| | Specialized | 8 | 4 | 2 | 2 | Construction materials | 1 |
| Taught in English | Specialized | 6 | 3 | 1 | 2 | Engineering mechanics | 2 |
| | Specialized | 8 | 4 | 2 | 2 | (1) Space | 3 |
| | Specialized | 6 | 3 | 2 | 1 | Concrete materials | 4 |
| Taught in English | Specialized | 6 | 3 | - | 3 | mathematics | 5 |
| | help | 6 | 3 | 2 | 1 | (1) Calculator Apps | 6 |
| | Specialized | 12 | 6 | 6 | - | Engineering drawing | 7 |
| | help | 6 | 3 | 3 | - | Factories | 8 |
| | General | 4 | 2 | - | 2 | Human rights and democracy | 9 |
| | help | 2 | 1 | - | 1 | Technical English | 10 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | **64** | **32** | **18** | **14** | **the total** | |
| | | | | | | | |

**First academic year (Study plan suggested)**

# Course Description Form(1)

| |
|---|
| **Course Name .1** |
| **The first stage - Concrete materials** |
| **Course Code .2** |
| **-** |
| **Semester/year .3** |
| **annual** |
| **Date this description was prepared .4** |
| **2024_2_19** |
| **Available attendance forms .5** |
| **practical – Theoretical** |
| **units (total) Number of study hours (total)/number of .6** |
| **6 / weekly 3** |
| **Name of the course administrator (if more than one name is mentioned) .7** |
| **:,Name: Raghad Mahdi Muslim email : raghad.muslim@atu.edu.com** |
| **objectives Course .8** |
| **Objectives of the study subject** |
| **• roducing the student to the materials that make up concrete and mastering the ysical, mechanical and chemical properties of these materials and their effect on .for these materials concrete. The practical part includes the necessary tests**<br>**• roducing the student to the importance of concrete and the materials it consists of, such as cement, aggregates, and additives**<br>**• How to strengthen compressive strength using available devices** |

| | |
|---|---|
| • concrete Conducting important laboratory tests for | |
| Teaching and learning strategies .9 | |
| • Take the forms from the site and examine them in the laboratories<br>• Conducting theoretical and practical calculations for various issues in the field of expertise.<br>• Conduct on-site investigation of concrete.- | he strategy |

**Course structure .10**

**Study plan (suggeste)**
**First academic year**

| valuation method | earning method | Name of the unit or topic | Required learning outcomes | ours | he week |
|---|---|---|---|---|---|
| +ral exams<br>ditorial | ecture + practical examples + laboratory | General about concrete principles its definition, ) composition, terminology, and .(properties | General principles of concrete | | he first<br>nd the second |
| | | Portland cement, its manufacture, chemical composition, .types and | Portland cement | | he third |

| | | | | | |
|---|---|---|---|---|---|
| | | | | | **nd the fourth**<br><br>**nd the fifth** |
| | | **Other types of cement (natural ,cementexpanding cement aluminum , cement) and specifications of each .type** | **Types of cement** | | **I** |
| | | **Cement properties: smoothness, weight loss by combustion, cement stability, heat of .hydration** | **Cement properties** | | **eventh**<br><br>**nd the eighth** |
| | | **Completion of cement properties: initial and final setting time, compressive .strength, tensile strength** | **Complementing the properties of cement** | | **inth**<br><br>**nd the tenth** |
| | | **Aggregates: classification of aggregates, methods for taking models, shape of particles, surface texture** | **Aggregate** | | **leventh** |

| | | | | | |
|---|---|---|---|---|---|
| | | **of particles, durability of .aggregates** | | | |
| | | **Mechanical properties of aggregate: specific gravity, unit ) weight of compacted and unconsolidated, gradation, porosity, ability to absorb, abrasion, -corrosion .(sand swelling** | **Agg regate** | **5** | **welveth<br><br>nd the thirteenth<br><br>nd the fourteenth<br><br>nd the fifteenth<br><br>nd the sixteenth** |
| | | **The proportion of salts, organic materials and clay materials in the aggregate, especially sand, interaction with .alkaline materials** | **Agg regate** | | **eventeenth<br><br>nd the eighteenth** |

| | | | | | |
|---|---|---|---|---|---|
| | | Light and heavy aggregate: Types of lightweight agg. (Natural and artificial), advantages and disadvantages of light aggregate compared to .ordinary aggregate | Aggregate | | ineteenth<br><br>nd the twenty |
| | | Specifications of light aggregate used in structural concrete, specifications of light aggregate used in insulating concrete, and specifications of light aggregate used in the production of concrete .blocks | Aggregate | | 1st<br><br>-wenty second |
| | | Uses of ,silicasilica fume, and fly ash in concrete production in terms of .specifications and effects | Aggregate | | wenty third |
| | | Water used :in concrete production mixing water, curing water, and specifications .of each type | Water used in concrete production | | wenty fourth |

| | | | | | |
|---|---|---|---|---|---|
| | | Fibers used in concrete (types, .(specifications | Fibers used in concrete | | 5th |
| | | Admixtures types and : for concrete reasons for using each type (mixing water reducing admixtures, delay admixtures, accelerating admixtures, operational improvement admixtures, refining freeze -admixtures, anti .admixtures | Additives for concrete | | -wenty sixth<br><br>he -twenty seventh |
| | | Chemical composition of the additives, homogeneity of the substance, checking the specific gravity of the additives, examining the remaining residues by drying for liquid additives, examining the remaining residues by drying for solid additives, and the .specifications for that | Chemical composition of additives | | -wenty eighth<br><br>he -twenty ninth |
| | | Physical requirements for | Physical | | hirty |

| | | | | | |
|---|---|---|---|---|---|
| | | concrete admixtures according to standard specifications (the permissible amount to delay the setting time for delaying materials and the permissible time for acceleration for accelerating materials …… .(.. | requirements for concrete admixtures | | |

**Course evaluation .11**

**out of 100 according to the tasks assigned to the Distribution of the grade .student, such as daily preparation, daily, oral, monthly, written exams, reports, etc**

**Learning and teaching resources .12**

| Required textbooks (methodology, if any) | -Website of the Technical Institute Najaf |
|---|---|
| Main references (sources) | of Laboratory Book -1<br>Tests for Concrete Technology (Haqqi<br>(Zubaidi-Ismail Mohsen, Suad Abbas Al<br>Concrete Book -2<br>(Khalaf-Muayad Nouri Al)<br>Lectures given by -3<br>.the professor<br>Related sources and -4<br>books in Arabic, English, and the<br>.Internet |
| Recommended supporting books and references (scientific journals, ....reports) | of Laboratory Tests for Book<br>Concrete Technology (Haqqi Ismail<br>(Zubaidi-Mohsen, Suad Abbas Al |

| | |
|---|---|
| **Internet sites** | **Electronic references, Internet sites** |

| | |
|---|---|
| Course Name .13 | |
| first stage - materials Construction | |
| Course Code .14 | |
| - | |
| Semester/year .15 | |
| annual | |
| Date this description was prepared .16 | |
| 2024_2_19 | |
| Available attendance forms .17 | |
| practical – Theoretical | |
| units (total) Number of study hours (total)/number of .18 | |
| 8 / weekly 4 | |
| Name of the course administrator (if more than one name is mentioned) .19 | |
| : Yamil Al Muhammad Munqidh Sadiq :Namedr.mohammed.isa@atu.edu.iq | |
| objectives Course .20 | |
| Objectives of the study subject | |
| • mastering the physical, mechanical construction materials Introducing the student to l chemical properties of these materials and their effect on concrete. The practical part l .includes the necessary tests for these materials<br>• . How to strengthen compressive strength using available devices<br>• .for these materials Conduct important laboratory tests | |
| Teaching and learning strategies .21 | |
| the student to carry out standard tests to determine the Qualifying construction materials conform to specifications and extent to which determine the possibility of using them in construction, which .ensures strength, safety and economy | The strategy |
| Course structure .22 | |

| Study plan (suggested)<br>First academic year | | | | | |
|---|---|---|---|---|---|
| Evaluation method | Learning method | Name of the unit or topic | Required learning outcomes | hours | the week |
| Oral +exams Editorial | Lecture + practical examples + laboratory | A general description of the physical properties and standard specifications of building materials and their uses in .buildings | of Knowledge physical properties Standard for building materials and their uses | 4 | the first |
| = | = | Clay bricks and methods of .making them | Block industry | 4 | the second |
| = | = | Properties, uses and .specifications of clay bricks | Clay bricks | 4 | the third |
| = | = | .Tests for clay bricks | of tests Knowledge .for clay bricks | 4 | the fourth |
| = | = | Limestone bricks, glass bricks, properties and manufacturing .methods | Properties and of manufacture limestone bricks and glass bricks | 4 | Fifth |
| = | = | concrete -Concrete blocks blocks (properties and manufacturing method, explaining the difference .(between the two | Properties and Concrete making concrete -blocks blocks | 4 | VI |
| = | = | Thermostone, its properties, and .manufacturing methods of | Properties and making Thermostone | 4 | Seventh |

| | | | | | |
|---|---|---|---|---|---|
| = | = | Discussing the visit to the brick .factory | work Brick factory | 4 | The price |
| = | = | its classification -Building stone .and types | Classification and Building types stone | 4 | Ninth |
| = | = | stone according Uses of building .to its types | Uses of building stone | 4 | The tenth |
| = | = | Bonding materials and their .types | Types of bonding materials | 4 | atheistic ten |
| = | = | Materials that resist moisture -(cement mortar, cement mortar ,Noora), Noora, how to make it its properties | Materials that resist moisture | 4 | twelveth |
| = | = | Bonding materials that are not resistant to moisture (plaster), .properties and manufacture | Bonding materials that do not resist moisture | 4 | Thirteenth |
| = | = | their types -Gypsum products and properties, secondary ceiling .materials and their types | for They are gypsum products And properties Secondary roofing their materials and types | 4 | fourteenth |
| = | = | Application materials, tiles, tiles .and their types | Application materials, tiles, tiles and their types | 4 | Fifteenth |
| = | = | -Manufacturing methods .joints -application method | Manufacturing -methods application method .joints - | 4 | sixteen |

| | | | | | |
|---|---|---|---|---|---|
| = | = | preventing materials, -Moisture .reasons for use their types and | -Moisture preventing materials, their types and reasons .for use | 4 | seventeenth |
| = | = | Materials that prevent high humidity, their types, .manufacturing methods and uses | Materials that prevent high humidity, their types, manufacturing .methods and uses | 4 | eighteen |
| = | = | flexible and flexible -Semi repellent materials, -moisture their types, uses, manufacturing -methods, and liquid moisture .repellent materials | flexible and -Semi -moisture flexible repellent materials, their types, uses, manufacturing methods, and -liquid moisture .repellent materials | 4 | nineteenth |
| = | = | Epoxy, its definition, properties, types, and uses | Epoxy, its definition, properties, types, and uses | 4 | The twentieth |
| = | = | its origin, types used and -Wood .methods of using it | its origin, -Wood types used and .methods of using it | 4 | Twenty first- |
| = | = | Wood drying methods and wood .defects | Wood drying methods and wood .defects | 4 | twenty tow |

| | | | | | |
|---|---|---|---|---|---|
| = | = | -Metals (ferrous and non ferrous materials) and their .uses in buildings | (ferrous Metals ferrous -and non materials) and their uses in .buildings | 4 | twenty third |
| = | = | Iron, methods of making it, its .types and uses | methods of , Iron making it, its types .and uses | 4 | twenty fourth |
| = | = | .Thermal insulation materials | Thermal insulation .materials | 4 | 25th |
| = | = | .Dyes | .Dyes | 4 | 27th |
| = | = | . glass the | . the glass | 4 | Twenty - eigh th |
| = | = | Asphalt, properties of asphalt .materials | Asphalt, properties of asphalt .materials | 4 | XXIX |
| = | = | Types of asphalt and its uses in .construction works | Types of asphalt and its uses in .construction works | 4 | thirty |

| |
|---|
| |
| **Course evaluation .23** |
| **Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily .preparation, daily, oral, monthly, written exams, reports, etc** |
| **Learning and teaching resources .24** |
| **Najaf -Technical Institute Website of the** **Required textbooks (methodology, if any)** |
| **Main references (sources)** |

## Course Description (3)

## Course Form

| | |
|---|---|
| / 1986 / Building Construction Book -1<br>University of Baghdad<br>Levon and Zuhair Written by: Ertin<br>Sako<br>Building Construction and Factory -2<br>Construction 1991/Technical Education<br>First Stage - Engineering Mechanics<br>-Al Prepared by: Adnan - Authority<br>.Nuaimi-Dahan and Sarmad Fakhri Al<br>- | |
| | Course Name .25 |
| | Course Code .26 |
| | Semester/year .27 |
| annual<br>Book project (Construction Materials),<br>written by: Jalal Sarsam / Technical<br>2024 2 19<br>.Education Authority<br>theoretical | Recommended supporting books and references (scientific journals, reports....)<br>Date this description was prepared .28<br>Available attendance forms .29 |
| Number of study hours (total)/number of units (total) .30 | |
| Internet sites | sites Electronic references, Internet |
| 6 / weekly 3 | |
| Name of the course administrator (if more than one name is mentioned) .31 | |
| : email The / Marwa Hamid Abdullah :Namemarwah934@atu.edu.iq | |
| objectives Course .32 | |
| Objectives of the study subject | |
| General objective of the course: To teach the student to analyze the forces and loads exerted on bodies and extract the stresses and strains resulting from these forces and their relationship to the materials that make up these bodies. | |
| Teaching and learning strategies .33 | |
| Analyzing structures and finding the forces and stresses in their parts as a result of external loads and their relationship to the | The strategy |

| | | |
|---|---|---|
| facilities so that they .can withstand the stresses placed on them safely and economically | dimensions of the various parts in engineering | |

**Course structure .34**

**Study plan (suggested)**

**First academic year**

| Evaluation method | Learning method | Name of the unit or topic | Required learning outcomes | hours | the week |
|---|---|---|---|---|---|
| Oral +exams Editorial | Lecture + practical examples + laboratory | Definition of mechanics, general review of physics topics related to the subject, trigonometric -ratios of angles, vector and non .vector quantities | A general review of physics topics related to the topic | 3 | the first |
| = | = | Analysis and synthesis of forces, the law of the force triangle and the force polygon . | analyze How to and synthesize forces | 6 | the second And the third |
| = | = | .Power torque | .to God be Glory | 3 | the fourth |
| = | = | .Doubles | .Doubles | 3 | Fifth |
| = | = | -The resultant of convergent, non .convergent, and parallel forces | Knowing the resultant of forces different | 6 | VI And the seventh |
| = | = | A .spread weights | the Scooping over .spread weights | 3 | VIII |
| = | = | Equilibrium, drawing a free body diagram, equilibrium equations, equilibrium in the | and ,Balance force drawing diagrams | 6 | Ninth And the tenth |

| | | | | | |
|---|---|---|---|---|---|
| | | -case of convergent, non .convergent, and parallel forces | | | |
| = | = | Types of tributaries, types of .sand, balance in tributaries | the Feeding on types of tributaries, types of supports, and the balance in .tributaries | 3 | eleventh |
| = | = | Gables, analysis of gables using .joints and sections | analyze How to gables using joints .and sections | 6 | twelveth The thirteenth |
| = | = | Friction, nature of friction, theory of friction, laws of ,friction, types of friction .general application | Theory of friction, laws of friction, types of friction, general applications . | 6 | fourteenth And the fifteenth |
| = | = | Centers of gravity of simple and complex geometric shapes and .their applications | Centers of gravity of simple and complex geometric shapes and their .applications | 6 | Sixteenth and seventeenth |
| = | = | Moment of inertia of simple and complex geometric shapes and .their applications | the Knowledge of moment of inertia of simple and complex geometric shapes and their .applications | 6 | eighteen And the nineteenth |

| | | | | | |
|---|---|---|---|---|---|
| = | = | Introduction to the resistance of materials, definition of stresses .and their types, safety factor | Resistance of and types materials of stresses | 3 | The twentieth |
| = | = | .Applications to stress | Applications to .stress | 3 | 21st |
| = | = | Strain, Hooke's law, the .relationship of strain to stress | Strain, Hooke's law, the relationship of .strain to stress | 3 | twenty tow |
| = | = | ,Lateral strain Poisson's ratio, .applications to strain and stress | Lateral strain, Poisseau ratio , applications to .strain and stress | 3 | twenty third |
| = | = | Shear and bending moment diagrams for bridges, how to compose with shear and .bending moment changes | Shear and bending moment diagrams for bridges, how to form equations for changing shear and bending .moments | 3 | twenty fourth |
| = | = | Applications to drawing shear and bending moment equations for bridges | Applications to drawing shear and bending moment equations for bridges | 3 | 25th |
| = | = | Bending stress of bridges and .their applications | Bending stress of bridges and their .applications | 6 | -twenty sixth |

| | | | | | |
|---|---|---|---|---|---|
| | | | | | The -twenty seventh |
| = | = | Shear stress of bridges and their .applications | Shear stress of bridges and their .applications | 3 | -Twenty eighth |
| = | = | Bridges made of two different .materials and their applications | bridges Identify made of two different materials and their .applications | 6 | XXIX And the thirty |

| | |
|---|---|
| Course evaluation .35 | |
| assigned to the student, such as daily Distribution of the grade out of 100 according to the tasks .preparation, daily, oral, monthly, written exams, reports, etc | |
| Learning and teaching resources .36 | |
| Najaf -Website of the Technical Institute | Required textbooks (methodology, if any) |
| Civil Engineering and :Source Engineering Mechanics, Part One / Prof. Mazen Taha, M. Muhammad Amin, M.M. Maher Omar | Main references (sources) |
| | Recommended supporting books and references (scientific journals, reports....) |
| Internet sites | Electronic references, Internet sites |

# Course Description Form(4)

| |
|---|
| Course Name .37 |
| The first stage - (1) Space |
| Course Code .38 |
| - |
| Semester/year .39 |
| annual |
| Date this description was prepared .40 |
| 2024_2_19 |
| Available attendance forms .41 |
| practical - Theoretical |
| Number of study hours (total)/number of units (total) .42 |
| 8 / weekly 4 |
| Name of the course administrator (if more than one name is mentioned) .43 |
| :address email The Mohammed Munqidh Sadiq :Na<br>dr.mohammed.isa@atu.edu.iq |
| objectives Course .44 |
| Objectives of the study subject |
| General objective of the course: To teach the student the basics of surveying, its use for civil engineering purposes, and conducting calculations related to it |

| | |
|---|---|
| **Teaching and learning strategies .45** | |
| **Qualifying the student to use various surveying equipment for civil engineering work and implementing maps for projects and enabling him to .plan, supervise and implement these projects** | **The strategy** |

| | |
|---|---|
| | |
| **Course evaluation .46** | |
| **to the tasks assigned to the student, such as daily Distribution of the grade out of 100 according .preparation, daily, oral, monthly, written exams, reports, etc** | |
| **Learning and teaching resources .47** | |
| **Najaf -Website of the Technical Institute** | **Required textbooks (methodology, if any)** |
| **Construction Surveying book -1 written by: William Irvin Engineering Survey, Ministry of -2 Higher Education and Scientific Research, Basra University, Basra College of Engineering** | **(sources) Main references** |
| | **Recommended supporting books and (....reports ,references (scientific journals** |
| **Internet sites** | **Electronic references, Internet sites** |

## Course Description Form(5)

| |
|---|
| **Course Name .48** |
| **first stage - Mathematics** |
| **Course Code .49** |
| **-** |
| **Semester/year .50** |
| **annual** |
| **Date this description was prepared .51** |
| **2024_2_19** |
| **Available attendance forms .52** |
| **theoretical** |
| **Number of study hours (total)/number of units (total) .53** |
| **6 / weekly 3** |
| **Name of the course administrator (if more than one name is mentioned) .54** |
| **Name: Rusul Hussein Ali / Amil: rusul.hussein.inj@atu.edu.iq** |
| **objectives Course .55** |
| **Objectives of the study subject** |
| **s ability to use mathematics in practical applications and benefit 'Developing the student .from it in other engineering lessons** |
| **Teaching and learning strategies .56** |
| **The strategy** **different ways of representing equations, The student learned the mathematical laws, and various data by forming curves in a graph and using different types of diagrams that suit the purpose of .drawing them** |
| **Course structure .57** |
| **Study plan (suggested)** |
| **First academic year** |

| Evaluation method | Learning method | Name of a unit or topic | Required learning outcomes | hours | the week |
|---|---|---|---|---|---|
| Oral +exams Editorial | Lecture + practical examples + laboratory | Matrices, determinants, and .their properties | Matrices | 3 | the first |
| = | = | Solving linear equations, Cramer's method, applications to determinants, solving force .analysis equations | Solve linear equations | 3 | the second |
| = | = | Vectors, vector analysis, vector and scalar quantities, vector algebra, arithmetic operations .in space for vectors | .Vector analysis | 3 | the third |
| = | = | Unit of orthogonal vectors, vector scale, scalar and cross multiplication, applications of vectors, calculation of torque .applications, work | Orthogonal vector unit | 3 | the fourth |
| = | = | Function, trigonometric functions and trigonometric relationships, logarith function . | Trigonometric functions | 6 | Fifth |

| | | | | | |
|---|---|---|---|---|---|
| = | = | Exponential function, hyperbolic .functions, their applications | Exponential function | 3 | VI |
| = | = | Objectives, the objective of algebraic and trigonometric functions, applications to the .objective | The purpose of functions | 3 | Seventh |
| = | = | .Sequences | .Sequences | 3 | VIII |
| = | = | Differentiation, derivative, derivative of algebraic functions, .chain rule | differentiation | 3 | Ninth |
| = | = | Curvilinear functions, standard derivative function of higher .order | Curvilinear functions | 6 | The tenth |
| = | = | Derivative of trigonometric functions, derivative of .logarithmic functions | Derivative of trigonometric functions | 3 | eleventh |
| = | = | Derivative of exponential function, derivative of .hyperbolic functions | The erivative of the exponential function | 3 | twelveth |
| = | = | Applications of the derivative, the tangent and perpendicular equation, speed, acceleration, .and magnification | Derivative applications | 3 | Thirteenth |
| = | = | .Exponents and logarithms | Exponents and .logarithms | 3 | fourteenth |
| = | = | General physical and engineering applications, .drawing functions | General physical and engineering applications, | 3 | Fifteenth |

| | | | | | |
|---|---|---|---|---|---|
| | | | drawing .functions | | |
| = | = | Integration, indefinite integration, integration of algebraic and logarithmic .functions | integration | 3 | sixteen |
| = | = | Integration of exponential and .trigonometric functions | Integration of exponential and trigonometric .functions | 3 | seventeen th |
| = | = | applications ,Definite integration of definite integration, area under the curve, area between .two curves | Definite integral | 3 | eighteen |
| = | = | .Rotational volumes, arc length | Rotational volumes | 3 | nineteent h |
| = | = | Application of physics and torque, ,engineering (work .(momentum, moment of inertia | Physical and engineering applications | 3 | and Ten n |
| = | = | General methods of integration, including substitution and .division | General methods of integration | 6 | -Twenty first and - twenty second |
| = | = | ,Use partial exponential, and .logarithmic fractions | Use partial, exponential, and logarithmic .fractions | 3 | twenty third |
| = | = | Numerical methods in integration, the trapezoid rule, | Numerical methods in | 3 | twenty fourth |

| | | | | | |
|---|---|---|---|---|---|
| | | the rule (calculating the volume of soil quantities and the area of .(longitudinal sections | integration, the trapezoid rule, the rule calculating the ) volume of soil quantities and the area of longitudinal .(sections | | |
| = | = | Solving discrete, homogeneous, and linear differential equations with their various applications .within the field of specialization | Solving discrete, homogeneous, and linear differential equations with their various applications within the field of .specialization | 3 | 25th |
| = | = | Finding the highest or lowest .point of a vertical curve | Finding the highest or lowest point of a vertical .curve | 3 | -twenty sixth |
| = | = | Complex numbers, addition, subtraction, multiplication, .division | Complex numbers, addition, subtraction, multiplication, .division | 3 | 27th |

| | | | | | |
|---|---|---|---|---|---|
| = | = | Polar formula, converting the polar formula to algebraic and vice versa, powers and roots, .representing roots graphically | Converting the polar formula to algebraic and vice versa | 3 | -Twenty eighth |
| = | = | Statistical operations, frequency distributions, histogram, arithmetic ,frequency curve mean, range, standard deviation, .variance and proportion | Statistical operations | 3 | -Twenty nine thirtieth |

| | |
|---|---|
| Course evaluation .58 | |
| Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily .preparation, daily, oral, monthly, written exams, reports, etc | |
| Learning and teaching resources .59 | |
| Najaf -Website of the Technical Institute | Required textbooks (methodology, if any) |
| | Main references (sources) |
| the booklet on The methodological book and methodological issues | Recommended supporting books and references (scientific journals, reports....) |
| Internet sites | Electronic references, Internet sites |

## Course Description Form(6)

| |
|---|
| Course Name .60 |
| first stage - (1) Calculator applications |
| Course Code .61 |

| |
|---|
| - |
| Semester/year .62 |
| annual |
| description was prepared Date this .63 |
| 2024_2_19 |
| Available attendance forms .64 |
| practical -Theoretical |
| Number of study hours (total)/number of units (total) .65 |
| 6 / weekly 3 |
| Name of the course administrator (if more than one name is mentioned) .66 |
| Name: :Marwa Hamid / Emailmarwah934@atu.edu.iq |
| objectives Course .67 |
| Objectives of the study subject |
| Introducing the student to the calculator with an idea about its prospects and use in various skill in using the calculator fields and the principles of programming and providing him with .to implement programs previously prepared for application in his field of specialization |
| Teaching and learning strategies .68 |
| Windows operating system , theAuto Cad drawing program , theMicros The strategy Word program , and printingExcel . |
| Course structure .69 |
| Study plan (suggested) |
| First academic year |

| Evaluation method | Learning method | Name of the unit or topic | Required learning outcomes | hours | the week |
|---|---|---|---|---|---|
| Oral +exams Editorial | Lecture + practical examples | Windows : operating system The concept of the Windows system, its advantages and basic requirements, operating the system, components of the maindesktop screen , the concept of theicon how to , deal with mouse activities, the importance and components of the TaskBar making use , ofStart to enter programs, exiting the system and turning ) .off the calculatorShut Down .( | Windows operating system | 3 | the first |
| = | = | The concept of the window for any program and identifying main components, dealing its ) :with desktop icons such as My Documents ; My Computer; Recycle Bin .( Desktop the , main screen concept of theicon how to , deal with mouse activities, the importance and components of the TaskBar using ,Start to enter programs, exit the | Window concept for any program | 3 | the second |

| | | | | | |
|---|---|---|---|---|---|
| | | system and turn off the<br>) calculatorShut Down .( | | | |
| = | = | ) Getting to knowMy Computer in terms of disks, ( folders and files, how to deal with formatting floppy disks and copying folders and files, taking advantage of cutting and pasting and knowing the properties of disks, folders and files, dealing with the trash and how to delete and retrieve files through what the trash can provides in this .aspect | ) IdentifyMy Computer in ( ,terms of disks | 3 | the third |
| = | = | Autocad program , getting to know the program, where its name comes from, the importance of the program and the contents of the program window, and how to .create a new file and store it | Autocad program | 3 | the fourth |
| = | = | to select most AutoCAD How commands | How to select most AutoCAD commands | 3 | Fifth |
| = | = | Toolbars in AutoCAD, how to hide and show them, and customize a special interface for the program | Toolbars in AutoCAD | 3 | VI |

| | | | | | |
|---|---|---|---|---|---|
| = | = | ) Status barGrid, Ortho, Snap, ..., etc. ( | ) Status bar Grid, Ortho, Snap, ..., etc. ( | 6 | Seventh and eighth |
| = | = | Auxiliary commands and ) panel limitsLimits, Units, Zoom ( | Auxiliary commands and ) panel limits Limits, Units, Zoom ( | 6 | The ninth and tenth |
| = | = | Basic drawing commands Draw menu | Basic drawing commands Draw menu | 12 | Eleventh - fifteenth |
| = | = | Modify menu commands | Modify menu commands | 15 | xx-xvi |
| = | = | Text commands with Dimension commands | Text commands with Dimension commands | 6 | xxii-xxii |
| = | = | Microsoft Word printing program, how to run it and write with it, how to store it, change font types, modify the paper in terms of margins or flip the paper, use tables, and .print within them | Microsoft Word printing program | 12 | -Twenty -third -twenty sixth |
| = | = | Microsoft Excel program , how to run it, download numerical values in columns and store, add new columns or rows, and apply some | Microsoft Excel program | 12 | -Twenty -seventh thirtieth |

| | | | | | |
|---|---|---|---|---|---|
| | | functions such as addition and other mathematical .operations | | | |
| Course evaluation .70 | | | | | |
| according to the tasks assigned to the student, such as daily Distribution of the grade out of 100 .preparation, daily, oral, monthly, written exams, reports, etc | | | | | |
| Learning and teaching resources .71 | | | | | |
| Najaf -Website of the Technical Institute | | | Required textbooks (methodology, if any) | | |
| by Nasser Hassan book3D AutoCAD -1 Ismail<br>3d max blue box -2020 revit model -2 design iteration turn the page<br>Lectures given by the professor -3 . based on practical experience<br>Scientific competition between students based ,through drawings on AutoCAD .on creativity and distinction | | | references (sources) Main | | |
| | | | Recommended supporting books and references (scientific journals, reports....) | | |
| Internet sites | | | Electronic references, Internet sites | | |

# Course Description Form(7)

| |
|---|
| Course Name .72 |
| The first stage - Engineering drawing |
| Course Code .73 |
| - |

| |
|---|
| Semester/year .74 |
| annual |
| Date this description was prepared .75 |
| 2024_2_19 |
| Available attendance forms .76 |
| practical |
| study hours (total)/number of units (total) Number of .77 |
| 12 / weekly 6 |
| Name of the course administrator (if more than one name is mentioned) .78 |
| : leans one The / Marwa Fouad Manhar : Name Marwa22312@atu.edu.iq |
| objectives Course .79 |
| Objectives of the study subject |
| Teaching the student the basic principles of engineering drawing and computer drawing .programs in an efficient and rapid manner, to enable him to express his ideas through it |
| : Teaching and learning strategies .80 |

| | |
|---|---|
| draw and read engineering maps with knowledge of the Qualifying the studen .architectural and construction terms used in maps | The strategy |

Course structure .81

Study plan (suggested)

First academic year

| Evaluation method | Learning method | Name of the unit or topic | Required learning outcomes | hours | the week |
|---|---|---|---|---|---|
| +Oral exams Editorial | Lecture + applied examples | basics Engineering drawing, tools Used, installing the board, types of fonts, writing in geometric calligraphy | basics Engineering drawing | 6 | the first |
| = | = | Geometric operations, bisecting a line segment, bisecting an angle, connecting a straight line with a circle with an arc, connecting two straight lines with an arc, drawing an equal triangle Polygon, pentagon, hexagon, straight line tangent to inside and two circles outside, arc tangent to two circles inside and outside | Engineering operations | 6 | the second |
| = | = | Ellipse, drawing application Shapes Engineering using basic engineering processes | Ellipse | 6 | the third |
| = | = | principles Projection, placement method | principles Projection | 6 | the fourth |

| | | | | | |
|---|---|---|---|---|---|
| | | **Dimensions On drawing, exercises on projection** | | | |
| **=** | **=** | **Isometric perspective drawing** | **Perspective drawing** | ***6*** | **Fifth** |
| **=** | **=** | **finding The missing projection with isometric perspective drawing** | **finding The missing projection with isometric perspective drawing** | **6** | **VI** |
| **=** | **=** | **Clips** | **Clips** | **6** | **Seventh** |
| **=** | **=** | **AutoCAD applications, redefining the relationship between the AutoCAD program and -its use in creating two ) dimensional drawings 2D) .-and three ( ) dimensional3D and ( open a new page in the program, specify the ) drawing areaLimits ,( draw a panel frame and a data table, while applying writing inside the data table )Text(** | **AutoCAD applications** | **6** | **VIII** |
| **=** | **=** | **Recognition Species Fonts and method Obtain it and** | **Recognition Species lines** | **6** | **Ninth** |

| | | | | | |
|---|---|---|---|---|---|
| | | use it in a program autocad from By placing it in multiple layersand colors Different and different thickness(Line weight) | | | |
| = | = | fee Shapes Engineering Fundamental, triangle, pentagon, hexagon and general, polygons in ellipse, connecting two lines with a circle sector, connecting two circles with an arc by CircleTtr directs a straight line to a circle with an arc in the same way | fee Shapes Engineering the basic | 6 | The tenth |
| = | = | fee shapes Engineering vehicles and mechanical parts (applications to (engineering processes | fee shapes Composite engineering | 12 | Eleventh and twelfth |
| = | = | fee Falls For shapes Stereoscopic and placement Dimensions on it using multiple layers. | fee Falls For shapes Stereoscopic | 12 | Thirteenth And the fourteenth |
| = | = | fee Falls For shapes Stereoscopic using colors Different lines and | fee Falls For shapes Stereoscopic | 3 | Fifteenth |

| | | | | | |
|---|---|---|---|---|---|
| | | different thicknesses by changing the properties. | using colors Different fonts | | |
| = | = | Find the missing projection and continue drawing the projections | Finding the lost location | 6 | sixteen |
| = | = | situation Extras On ) graphicsHatch & gradient and how to ,( add additional patterns to the program from external sources | situation Extras On fees | 6 | seventeenth |
| = | = | Drawing a solid shape usingthe Isometric snap method | Drawing a solid shape usingthe Isometric snap method | 12 | eighteen And the nineteenth |
| = | = | Draw sections in the same way(Isometric snap) | Draw sections in the same way (Isometric snap) | 6 | The twentieth |
| = | = | How to duplicate shapes ) using the command Polar array &array Rectangular ( | How to repeat shapes | 6 | twenty one |
| = | = | How to makea block to repeat geometric shapes and how to store and recall them | Block method | 6 | twenty tow |
| = | = | Draw an integrated panel containing Species The drawings are(2D) and | Drawing an integrated panel | 12 | -Twenty third and |

| | | | | | |
|---|---|---|---|---|---|
| | | (3D) and contain a data table and an explanation of the drawings. | | | -twenty fourth |
| = | = | View method Shapes Different scenes on one screen using view ports command | View method Shapes | 6 | 25th |
| = | = | How to transfer graphics between files and how to open more than one file using thewindow command)( | How to transfer graphics between files | 6 | -twenty sixth |
| = | = | Individualizing geometric prism, ,shapes (cube (pyramid | Individualizing geometric shapes | 6 | 27th |
| = | = | Individualizing geometric shapes (truncated (pyramid, cone | Individualizing geometric shapes | 6 | -Twenty eighth |
| = | = | Dealing with the drawing scale and printing method using theplot command ( | Dealing with scale drawing | 6 | XXIX |
| = | = | How to export drawings fromdwg format to (pdf) As well as(psd) to create virtual printers | How to export drawings | 6 | thirty |
| Course evaluation .82 | | | | | |
| Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily .daily, oral, monthly, written exams, reports, etc ,preparation | | | | | |
| Learning and teaching resources .83 | | | | | |

| | |
|---|---|
| Najaf -Website of the Technical Institute | Required textbooks (methodology, if any) |
| | Main references (sources) |
| Systematic engineering drawing book | Recommended supporting books and (....journals, reports references (scientific |
| Internet sites | Electronic references, Internet sites |

## Course Description Form(8)

| |
|---|
| Course Name .84 |
| first stage - Laboratories |
| Course Code .85 |
| - |
| Semester/year .86 |
| annual |
| Date this description was prepared .87 |
| 2024_2_19 |
| Available attendance forms .88 |
| practical |
| Number of study hours (total)/number of units (total) .89 |
| 6 / weekly 3 |
| Name of the course administrator (if more than one name is mentioned) .90 |
| :Asaad Abdel Zahra / Email : Namewww.eng.asaad65@gmail.com |
| objectives Course .91 |
| Objectives of the study subject |

| |
|---|
| **Acquiring the manual skill in using hand tools, measuring tools, and operating machines necessa .building and construction specialization to prepare the student as a technician in the** |
| **Teaching and learning strategies .92** |
| **Acquiring the manual skill in using hand tools, measuring tools, and operati machines necessary to prepare the student as a technician in the building a .construction specialization** **The strategy** |
| **Course structure .93**<br><br>**Study plan (suggested)**<br><br>**First academic year** |

| Evaluation method | Learning method | Name of the unit or topic | Required learning outcomes | hours | the week |
|---|---|---|---|---|---|
| Oral +exams Editorial | Lecture + practical examples | safety: general Industrial rules for accident prevention, health care equipment and methods of .using them | Industrial Safety | 6 | the first And the second |
| = | = | Carpentry: The basic principles of carpentry the use of models and off saw, -hand tools (cut jigsaw, hammer, planer, .(drill, file | Carpentry | 6 | the third And the fourth And the fifth |
| = | = | Use of band saw machines, disc machines, planers, .and press machines | Using a saw machine | 3 | VI |

| | | | | | |
|---|---|---|---|---|---|
| = | = | **Filing: Training students and using on filing work measuring tools, files, automatic sawing devices , .hooks, and drills** | **The filings** | **6** | **Seventh And the eighth** |
| = | = | **Lathe: Using different lathes, lathe operations plane, internal draw, ) .(different tooth work** | **Lathing** | ***6*** | **Ninth And the tenth** |
| = | = | **Plumbing: industrial safety in casting, molds, mold formation, and .plumbing work steps** | **Plumbing** | **3** | **eleventh** |
| = | = | **Welding: A. Occupational safety and security .precautions B. Used tools and safety industrial .equipment C. Types of welding (gas, ultrasonic, pressure welding, electric arc .(welding** | **Welding** | **15** | **twelveth And the thirteenth And the fourteenth And the fifteenth And the sixteenth** |
| = | = | **Metal cutting and bending: Devices and used in cutting machines and bending metal sheets .and reinforcing steel bars** | **Devices and machines used in cutting and bending metal .sheets and rebar** | **6** | **seventeenth And the eighteenth** |

| | | | | | |
|---|---|---|---|---|---|
| = | = | Plumbing: Training the student on the rolling mill machine and the process .of planning on plates | Plumbing | 6 | nineteenth And the twenty |
| = | = | Measurement processes and tools used (tape, .(vernier, micrometer | Measurement operations | 6 | 21st -Twenty second |
| = | = | Practical applications for carpentry works for civil :constructions, including | Practical applications for woodworking | 3 | twenty third |
| = | = | Work: Wooden doors press doors, packing ) .(doors | wooden a job doors | 3 | twenty fourth |
| = | = | .Work: wooden molds | Work: wooden molds | 3 | 25th |
| = | = | Applications on reinforcing steel, making roof, bridge and column cutting ) reinforcement iron, bending iron and .(welding pieces | Applications to reinforcing steel | 6 | -twenty sixth The -twenty seventh |
| = | = | Exercises on cutting and joining structural steel using rivets, screws, and .welding | Exercises on cutting and joining steel | 6 | -Twenty eighth The -twenty ninth |
| = | = | plastering Stone and works: cutting, sawing, .smoothing, perforation | Stone and stone works | 3 | thirty |

| | |
|---|---|
| **Course evaluation .94** | |
| **Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily .preparation, daily, oral, monthly, written exams, reports, etc** | |
| **and teaching resources Learning .95** | |
| **Najaf -Website of the Technical Institute** | **Required textbooks (methodology, if any)** |
| **/ 1986 / Building Construction Book -1<br>University of Baghdad<br>Levon and Zuhair Written by: Ertin Sako<br>Building Construction and Factory -2<br>Construction 1991/Technical Education<br>-Prepared by: Adnan Al - Authority .Nuaimi-Dahan and Sarmad Fakhri Al** | **Main references (sources)** |
| | **Recommended supporting books and references (scientific journals, reports....)** |
| **Internet sites** | **sites Electronic references, Internet** |

## Course Description Form(9)

| |
|---|
| **Course Name .96** |
| **first stage - Technical English** |
| **Course Code .97** |
| **-** |
| **Semester/year .98** |
| **annual** |

| |
|---|
| Date this description was prepared .99 |
| 2024_2_19 |
| Available attendance forms .100 |
| theoretical |
| Number of study hours (total)/number of units (total) .101 |
| 2 / weekly 2 |
| Name of the course administrator (if more than one name is mentioned) .102 |
| : NameDoaa Doaa.zaid@atu.edu.iq : Email / Muhammad Abd Zaid |
| objectives Course .103 |
| study subject Objectives of the |
| The student reviews the basic, simplified rules of the English language that he had previously studied in the previous stages, but at length, as well as gradually introducing the student to the .civil specialization in its various branches atmosphere of technical terminology related to |
| Teaching and learning strategies .104 |

| | |
|---|---|
| a . The theoretical part represents40% of the total allocated hours, equivalent to 12 .weeks<br>B: The practical part represents60% of the total hours allocated, which is equivalent to8 .weeks | The strategy |

| Week | Sylibus |
|---|---|
| First | A/ pronunciation: voiceiess consonants<br>B/ elements of sentence structure<br>C/ patterns of sentences |

| | |
|---|---|
| **Second** | **A/pronunciation : voiceless consonants (ii)**<br>**B/ the part of speech:**<br>**1.nouns 2.verbs 3. Adjectives 4. Adverbs** |
| **Third** | **A/ pronunciation : voiced consonants (I)**<br>**B/ the parts of speech :**<br>**1. articles 2. Demonstratives 3. Pronouns 4. Prepositions 5. Conjunctions 6. Interjunctions** |
| **Forth** | **A/ pronunciation: voiced consonants (ii)**<br>**B/ ciassification of verbs** |
| **Fifth** | **A/ pronunciation : pure vowels**<br>**B/ pronouns (I)** |
| **Sixth** | **A/pronunciation :diphthongs**<br>**B/pronounce (II)** |
| **Seventh** | **A/ types of questions**<br>**B/genitives** |
| **Eghteth** | **A/ the present simple tense**<br>**B/the present continuous tense**<br>**C/ the present perfect tense** |
| **Nineth** | **A/ the past simple tense**<br>**B/ the past perfect tense**<br>**C/ future** |
| **Tenth** | **A/ active and passive voice**<br>**B/ the number system in English** |
| **Eleventh** | **A/punctuation** |
| **Twelveth** | **A/business letters**<br>**B/tenders** |
| | **Comprehensive paragraphs about the branches of civil engineering** |

| | |
|---|---|
| **Thirteenth-Thirty** | **Interpretation of the above mentioned paragraphs** |
| | **Extracting the technical terms** |
| | **Making an independent sentences by using the terms.** |
| | **Writing a composition using the terms related to the subject under discussion** |

| | |
|---|---|
| **Course evaluation .105** | |
| **Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily .reports, etc ,preparation, daily, oral, monthly, written exams** | |
| **Learning and teaching resources .106** | |
| **Najaf -Website of the Technical Institute** | **Required textbooks (methodology, if any)** |
| **Headway English course for intermediate 2and beginners 1** | **Main references (sources)** |
| | **Recommended supporting books and references (scientific journals, reports....)** |
| **Internet sites** | **Electronic references, Internet sites** |

## (10) Course Description Form

| | |
|---|---|
| Course Name | .107 |
| The first stage - Human rights and democracy | |
| Course Code | .108 |
| - | |
| Semester/year | .109 |
| annual | |
| Date this description was prepared | .110 |
| 2024_2_19 | |
| Available attendance forms | .111 |
| theoretical | |
| Number of study hours (total)/number of units (total) | .112 |
| 4 / weekly 2 | |
| Name of the course administrator (if more than one name is mentioned) | .113 |
| : Amil- Al / Rida-Muhammad Abd Al :Name | |
| objectives Course | .114 |
| Objectives of the study subject | |
| development in various eras, and the and Introducing the student to human rights, their goals protecting human role of international organizations and public opinion in respecting and .rights | |
| Teaching and learning strategies | .115 |
| development in various and Introducing the student to human rights, their goals eras, and the role of international organizations and public opinion in respecting .human rights and protecting | The strategy |
| Course structure | .116 |
| Study plan (suggested) | |

| First academic year | | | | | |
|---|---|---|---|---|---|
| **Evaluation method** | **Learning method** | **Name of the unit or topic** | **Required learning outcomes** | **hours** | **the week** |
| **Oral +exams Editorial** | **Lecture + practical examples** | **definition, Human rights, their and goals** | **General information about human rights** | 2 | **the first** |
| **=** | **=** | **The roots of human rights and their development in human history: human rights in ancient and medieval times** | **Its development** | **2** | **the second** |
| **=** | **=** | **ancient Human rights in civilizations, especially the Mesopotamian civilization** | **Knowledge of human rights in ancient civilizations** | **2** | **the third** |
| **=** | **=** | **Human rights in divine laws, with a focus on human rights in . Islam** | **Knowledge of human rights in divine laws** | **2** | **the fourth** |
| **=** | **=** | **Human rights in the Middle Ages: Human rights in doctrines, schools, and political theories. Human rights in companies and their declarations, revolutions, and constitutions (English** | **Knowledge of human rights in the Middle Ages** | ***2*** | **Fifth** |

| | | | | | |
|---|---|---|---|---|---|
| | | documents: the American the French -Revolution the Russian -Revolution .(Revolution | | | |
| = | = | rights in contemporary and international : modern history recognition of human rights since World War I and the .League/United Nations | rights in Human contemporary history | 2 | VI |
| = | = | Regional recognition of human rights: European Convention on Human Rights1950 , American Convention on Human Rights1969 African , Charter on Human Rights1981 Arab Charter on Human , Rights1994 . | Regional recognition of human rights | 2 | Seventh |
| = | = | NGOs and human rights International Committee of ) the Red Cross, Amnesty International, Human Rights (Watch | -Non governmental organizations and human rights | 2 | VIII |
| = | = | National human rights organizations | National human rights organizations | 2 | Ninth |
| = | = | Human rights in Iraqi constitutions between theory .and reality | Human rights in Iraqi constitutions | 2 | The tenth |

| | | | | | |
|---|---|---|---|---|---|
| | | | between theory .and reality | | |
| = | = | The relationship between and public human rights freedoms<br>In the Universal -1 Declaration of Human Rights<br><br>In regional charters and : national constitutions | The relationship between human rights and public freedoms | 4 | Eleventh and twelfth |
| = | = | Necessary human rights and collective human rights | Essential human rights | 2 | Thirteenth |
| = | = | Economic, social and cultural human rights, civil human .rights and politics | Economic, social and cultural human rights | 2 | fourteenth |
| = | = | Modern human rights: facts in development, the right to a clean environment, the right to solidarity, the right to religion | Modern human rights | 2 | Fifteenth |
| = | = | Exercises on cutting and connecting structural steel, guarantees in constitutional oversight, guarantees in freedom of the press and public -non opinion, the role of governmental organizations in respecting and protecting .human rights | Exercises on cutting and linking guarantees in constitutional oversight | 2 | sixteen |

| | | | | | |
|---|---|---|---|---|---|
| = | = | Guarantees of respect and protection of human rights at the national level, guarantees in laws, the constitution and guarantees in the principle of .the rule of law | Guarantees of respect and protection of human rights | 2 | seventeenth |
| = | = | Guarantees, respect and protection of human rights at :the international level<br>The role of the United Nations - agencies in and its specialized providing guarantees | Guarantees, respect and protection of human rights | 2 | eighteen |
| = | = | The role of regional organizations (the Arab League, the European Union, the African Union, the Organization of American States, the (ASEAN Organization<br><br>international, The role of governmental -regional, non organizations and public opinion in respecting and protecting human rights | The role of regional associations | 2 | nineteenth |
| = | = | The general theory of freedoms: the origin of rights s'and freedoms, the project position on declared rights and | The general theory of freedoms | 2 | The twentieth |

| | | | | | |
|---|---|---|---|---|---|
| | | freedoms, the use of the term .general freedoms | | | |
| = | = | The functional nature of the concept of public freedoms: philosophical considerations of right, structural the functional considerations of the positive right, economic considerations .and public freedoms | The functional nature of the concept of public freedoms | 2 | 21st |
| = | = | The legal rule of the state of law | the legal Identify basis of the rule of law | 4 | twenty tow And the twenty third- |
| = | = | Regulation of public freedoms by public authorities | Regulation of public freedoms by public authorities | 2 | twenty fourth |
| = | = | judicial -Litigation or non injustice | The concept of -litigation or non judicial injustice | 2 | 25th |
| = | = | Judicial appeal, determining s responsibility for its 'the state legitimate actions | Judicial appeal | 2 | twenty sixth- |
| = | = | The impact of double judiciary on public freedoms | The impact – of double judiciary | 2 | 27th |

| | | | | | |
|---|---|---|---|---|---|
| | | Public freedoms under administrative jurisprudence | on public freedoms | | |
| = | = | Equality: the historical development of the administrative concept | Historical development of the administrative concept | 2 | Twent -y eighth |
| = | = | The modern development of the idea of equality | The modern development of the idea of equality | 2 | XXIX |
| = | = | gender equality<br><br>Equality between individuals according to their beliefs and race | Equality between and genders individuals | 2 | thirty |

| | |
|---|---|
| Course evaluation .117 | |
| Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily .preparation, daily, oral, monthly, written exams, reports, etc | |
| Learning and teaching resources .118 | |
| Najaf -Website of the Technical Institute | Required textbooks (methodology, if any) |
| There are no prescribed books, binding to study the subject are used | Main references (sources) |

| Suggested sources | Recommended supporting books and references (scientific journals, reports....) |
|---|---|
| . Human Rights Book Dr. Hamid Hanoun -1<br>Book on Human Rights, Democracy and -2<br>Public Liberties, Dr. Maher Sabry<br>. Kazem | |
| Internet sites | references, Internet sites Electronic |

Study plan (suggested)

: Academic year second

| Notes | Material type | number of units | The number of hours | | | Subject | T |
|---|---|---|---|---|---|---|---|
| | | | M | A | n | | |
| | Specialized | 8 | 4 | 2 | 2 | Concrete technology | 1 |
| | Specialized | 8 | 4 | 4 | - | Construction techniques | 2 |
| | Specialized | 8 | 4 | 2 | 2 | Soil mechanics | 3 |
| Taught in English | Specialized | 12 | 6 | 5 | 1 | Civil drawing | 4 |
| | Specialized | 6 | 3 | 2 | 1 | (2) Area | 5 |
| | Specialized | 4 | 2 | - | 2 | Construction machines | 6 |
| Taught in English | Specialized | 6 | 3 | 2 | 1 | (2) Calculator Apps | 7 |
| | Specialized | 6 | 3 | 2 | 1 | Quantity surveying | 8 |
| | Specialized | 4 | 2 | - | 2 | Buildings and factory construction | 9 |
| | Specialized | 4 | 2 | 2 | - | The project | 10 |
| | help | 2 | 1 | - | 1 | English | 11 |
| | | 9 6 | 5 3 | 2 2 | 4 1 | the total | |

# Course Description Form(1)

| | |
|---|---|
| Course Name | .119 |
| The second phase - Concrete techniques | |
| Course Code | .120 |
| - | |
| Semester/year | .121 |
| annual | |
| Date this description was prepared | .122 |
| 2024_2_19 | |
| Available attendance forms | .123 |
| practical -Theoretical | |
| Number of study hours (total)/number of units (total) | .124 |
| 8 / weekly 4 | |
| Name of the course administrator (if more than one name is mentioned) | .125 |
| :Aymil - Al /Marwa Fouad : Name Marwa22312@atu.edu.iq | |
| objectives Course | .126 |
| Objectives of the study subject | |
| and their composition, the Teaching the student the basic principles of concrete components different methods of pouring and producing concrete on construction sites, the types of .modern concrete, and the practical details of concrete works | |
| Teaching and learning strategies | .127 |
| basic principles of concrete components and their composition, the different methods of pouring and producing concrete on constructi .sites, the types of modern concrete, and the practical details of concrete works Teaching the student | The strategy |

| Course structure .128<br><br>(suggested) Study plan<br>academic year Second | | | | | |
|---|---|---|---|---|---|
| **Evaluation method** | **Learning method** | **Name of the unit or topic** | **Required learning outcomes** | **hours** | **the week** |
| **Oral exams + Editorial** | **Lecture + practical + examples laboratory** | **A general review of materials used in concrete. Definitions: reinforced ,Regular concrete place concrete, -in-concrete, cast premixed concrete, precast .concrete, prestressed concrete** | **Materials used in concrete** | 2 | **the first** |
| = | = | **Production and mixing of of mixing, types concrete, types .of mixers, mixing time** | **Concrete production and mixing** | **2** | **the second** |
| = | = | **Properties of fresh concrete: .workability and consistency Tests for fresh concrete: fluidity test, penetration test, precipitation test, compaction factor test, reshaping test with vibration and reciprocating vibration, and study of factors . .affecting workability** | **Soft concrete** | **4** | **the third And the fourth** |
| = | = | **Properties of fresh concrete: bleeding, separation, plastic** | **Properties of fresh concrete** | **4** | **Fifth** |

| | | | | | |
|---|---|---|---|---|---|
| | | shrinkage, and unit weight in .fresh concrete | | | And the sixth |
| = | = | The effect of air voids and methods of measuring them, calculating unit weight, yield, cement agent in fresh concrete, density equation and absolute volume equation to calculate .concrete components | The effect of air voids and methods for measuring them | *4* | Seventh and VIII |
| = | = | Transporting, pouring and .placing regular concrete | Transporting, pouring and placing regular concrete | 2 | Ninth |
| = | = | Curing (curing) concrete, .pouring in hot and cold climates | Casting in hot .and cold climates | 2 | The tenth |
| = | = | Pumping concrete, properties of concrete in pumping, devices .used in pumping | Properties of concrete in pumping | 2 | elevent h |
| = | = | mixed concrete: its -Ready definition, benefits and mixer ,production methods . trucks and vibrating trucks | Ready mixed concrete | 2 | twelvet h |
| = | = | hardened concrete, Resistance of nature of concrete resistance, .types of resistance | Resistance of hardened concrete | 2 | Thirtee nth |

| | | | | | |
|---|---|---|---|---|---|
| = | = | Concrete strength tests: compressive strength test, tensile strength test, (bending tensile .(test and splitting tensile test | Concrete resistance tests | | fourteenth |
| = | = | Factors affecting the strength of .hardened concrete Factors affecting the results of strength tests of hardened .concrete | Factors affecting the strength of hardened concrete | 2 | Fifteenth |
| = | = | Concrete shrinkage: drying differential ,shrinkage shrinkage, carbonation .shrinkage | Concrete shrinkage | 2 | sixteen |
| = | = | Concrete additives: their definition, their benefits and uses, the main materials used in their composition, and the notes that must be taken when using .them | Additives for concrete | 2 | seventeenth |
| = | = | accelerators, : Types of additives retarders, plasticizers, air vacuum makers, silica dust, bubblers, moisture preventers, .weight reducers...etc | Types of additives | 2 | eighteen |

| | | | | | |
|---|---|---|---|---|---|
| = | = | The -Design of concrete mixes: A .American method | Design of concrete mixes | 2 | ninetee nth |
| = | = | The -Design of concrete mixes: B .British method | Design of concrete mixes | 2 | The twentiet h |
| = | = | Applied issues for designing ordinary mixtures | Applied issues for designing ordinary mixtures | 2 | 21st |
| = | = | Applied issues for designing .mixtures containing additives | Applied issues for designing mixtures containing .additives | | twenty tow |
| = | = | destructive tests for -Non concrete: radiation methods, hardness methods, pulse .methods methods and resonance | destructive -Non tests for concrete | 2 | twenty third |
| = | = | Use offiberssuch , In concrete as fibers (plastic, glass, iron, .(wood | Use offibers | 2 | twenty fourth |
| = | = | The use of polymersin concrete, . polymeric concrete | Use ofpolymers | 2 | 25th |
| = | = | block, :Special types of concrete heavy concrete, ,lightweight | Special types of concrete | 2 | -twenty sixth |

## Course Form(2)

## Description

| | | | | | |
|---|---|---|---|---|---|
| | | placed -pre , underwater concrete ) aggregate concretePAC .( | | | |
| | | Special types of concrete: High | Course evaluation | 4 | .129 |
| Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily .daily, oral, monthly, written exams, reports, etc ,preparation | | | | | |
| | | ) High Strength Concrete(HSC ( | Resources of learning and teaching-12 | | 2/th 130 Twenty |
| Najaf -Website of the Technical Institute | | | Required textbooks (methodology, if a | | eighth- |
| Jalal Bashir -Source: Concrete Technology -1<br>The Internet and related books in Arabic and -2<br>English 1 | | | Main references (sources) | | |
| | | | Using some modern materials such as epoxy and carbon fibres | 4 | XXIX thirty |
| | | | Recommended supporting books and references (scientific journals, (....reports | | |
| Internet sites | | | Electronic references, Internet sites | | |

| |
|---|
| Course Name .1 |
| stage second -Soil mechanics |
| Course Code .2 |
| - |
| Semester/year .3 |
| annual |
| Date this description was prepared .4 |
| 2024_2_19 |
| Available attendance forms .5 |
| practical -Theoretical |
| Number of study hours (total)/number of units (total) .6 |

| |
|---|
| 8/4 |
| administrator (if more than one name is mentioned) Name of the course .7 |
| :Amiel - Hussein Ali Muhammad Al .Name: A.Minj.hus@atu.edu.iq |
| objectives Course .8 |
| The general and specific objective of the course: teaching the student the basic principles of concr their composition, the different methods of pouring and producing concrete on components a .construction sites, the types of modern concrete, and the practical details of concrete works |
| Teaching and learning strategies .9 |

| | |
|---|---|
| designs in engineering specializations Reading various plans, drawings and .1<br>.Conducting theoretical calculations for various issues in the field of expertise .2<br>.site soil investigation-Conduct on- .3 | The strategy |

Course structure .10

Study plan (suggested)

Second academic year

| Evaluation method | Learning method | Name of the unit or topic | Required learning outcomes | hours | the week |
|---|---|---|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| +Oral exams Editorial | Lecture + practical examples + laboratory | A general introduction to soil and rock geology | Definition of soil and how it is formed | 4 | the first |
| = | = | Soil components, soil physical properties, granular analysis | Soil types and their physical properties | 8 | The second and third |
| = | = | Plasticity properties of soil | Utterbrack borders | 8 | Fourth and fifth |
| = | = | Soil classification, using the unified classification ) methodUCS ( | Soil classification | 8 | Sixth and seventh |
| = | = | Permeability in soft and coarse soil and methods for measuring it in the .field and laboratory | Permeability in soil | 8 | Eighth and ninth |
| = | = | Types of stresses in the soil, total stress, effective stress, .lateral pressure | Stresses in the soil | 8 | The tenth and eleventh |
| = | = | Improving soil properties, .mechanical method | Improving soil properties | | twelveth |
| = | = | Types of laboratory tests and field soil | Soil tests | 8 | thirteenth and fourteenth |

| | | | | | |
|---|---|---|---|---|---|
| = | = | Using traditional methods to stabilize the soil and improve its .properties | Soil stabilization | 4 | Fifteenth |
| = | = | Using modern methods to stabilize the soil and improve its properties (soil reinforcement and types of materials .(used | Soil stabilization | 4 | sixteen And seventeenth |
| = | = | California endurance ratio for ) road worksCBR .( | Soil bearing for road works | 8 | And the eighteenth |
| = | = | Attachment to the soil and its relationship to subsidence | Soil subsidence | 4 | nineteenth And The twentieth |
| = | = | The phenomenon of swelling and collapse | Problems related to changing soil volume | 4 | 21st |
| = | = | Defining the shear resistance of the soil, calculating the amount of bearing | Shear resistance of soil | 4 | twenty tow |

| | | | | | |
|---|---|---|---|---|---|
| | | resistance of the .piping press | | | |
| = | = | Unconfined shear examination | Find shear resistance | 4 | twenty third |
| = | = | Direct shear examination | Find shear resistance | | twenty fourth |
| = | = | | | 4 | |
| = | = | Triaxial shear examination | Find shear resistance | 4 | 25th sixth-twenty |
| = | = | Field shear tests | Find field shear resistance | 4 | 27th |
| = | = | Types of foundations and their relationship to soil tolerance | Types of foundations | 4 | -Twenty eighth |
| = | = | Types of shallow and deep foundations and .piles | Shallow and deep foundations | 4 | XXIX |
| = | = | Introduction to soil investigation work, types of models, methods of taking them, and preparing and depth of test pits that must be carried out in the .laboratory | Soil investigation work | 4 | thirty |

| | | | | | |
|---|---|---|---|---|---|
| **+Oral exams Editorial** | **Lecture + practical examples + laboratory** | **A general introduction to soil and rock geology** | **Definition of soil and how it is formed** | 4 | the first |
| **=** | **=** | **Soil components, soil physical properties, granular analysis** | **Soil types and their physical properties** | **8** | **The second and third** |
| **=** | **=** | **Plastic properties of soil** | **Utterbrack borders** | **8** | **Fourth and fifth** |
| **=** | **=** | **Soil classification, using the unified classification ) methodUCS (** | **Soil classification** | **8** | **Sixth and seventh** |
| **=** | **=** | **Permeability in soft and coarse soil and methods for the measuring it in .field and laboratory** | **Permeability in soil** | **8** | **Eighth and ninth** |
| **=** | **=** | **Types of stresses in the soil, total stress, effective stress, .lateral pressure** | **Stresses in the soil** | **8** | **The tenth and eleventh** |
| **=** | **=** | **Improving soil properties, .mechanical method** | **Improving soil properties** | | **twelveth** |
| **=** | **=** | **Types of laboratory and field soil tests** | **Soil tests** | **8** | **thirteenth and fourteenth** |

| | | | | | |
|---|---|---|---|---|---|
| = | = | Using traditional methods to stabilize the soil and improve its .properties | Soil stabilization | 4 | Fifteenth |
| = | = | Using modern methods to stabilize the soil and improve its properties (soil reinforcement and types of materials .(used | Soil stabilization | 4 | sixteen And seventeenth |
| = | = | California endurance ratio for ) road worksCBR .( | Soil bearing for road works | 8 | And the eighteenth |
| = | = | Attachment to the soil and its relationship to subsidence | subsidence Soil | 4 | nineteenth And The twentieth |
| = | = | The phenomenon of swelling and collapse | Problems related to changing soil volume | 4 | 21st |
| = | = | Defining the shear resistance of the soil, calculating the amount of bearing | Shear resistance of soil | 4 | twenty tow |

| | | | | | |
|---|---|---|---|---|---|
| | | resistance of the .piping press | | | |
| = | = | Unconfined shear examination | Find shear resistance | 4 | twenty third |
| = | = | Direct shear examination | Find shear resistance | 4 | twenty fourth |
| = | = | Triaxial shear examination | Find shear resistance | 4 | 25th sixth-twenty |
| = | = | Field shear tests | Find field shear resistance | 4 | 27th |
| = | = | Types of foundations and their relationship to soil tolerance | Types of foundations | 4 | -Twenty eighth |
| = | = | Types of shallow and deep foundations and .piles | Shallow and deep foundations | 4 | XXIX |
| = | = | Introduction to soil investigation work, types of models, methods of taking them, and preparing and depth of test pits that must be carried out in the .laboratory | Soil investigation work | 4 | thirty |
| Course evaluation-11 .11 | | | | | |

| | |
|---|---|
| | |
| **Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily .preparation, daily, oral, monthly, written exams, reports, etc** | |
| **Resources of learning and teaching-12 .12** | |
| **Najaf -Website of the Technical Institute** | **textbooks Requi (methodology, if any)** |
| **bookASTM Manual -3**<br>**Saidi-Soil Mechanics Book / Dr. Hamid Al -4**<br>**The Internet and related books in Arabic and English -5** | **Main references (sources)** |
| | **Recommended supporting books and references (scientific (....journals, reports** |
| **Internet sites** | **Electronic referenc Internet sites** |

# Course Description Form(3)

| |
|---|
| **Course Name .13** |
| **second stage – Construction techniques** |
| **Course Code .14** |
| **-** |
| **Semester/year .15** |
| **annual** |

| |
|---|
| prepared Date this description was .16 |
| 2024_2_19 |
| Available attendance forms .17 |
| practical |
| Number of study hours (total)/number of units (total) .18 |
| 8 / 4 |
| Name of the course administrator (if more than one name is mentioned) .19 |
| - Ali Adel Al :NameZuhairi aliadelalzuhairi@atu.edu.iq / |
| objectives Course .20 |
| Providing the student with manual skills and qualifying him to carry out construction and building works so that he will be qualified upon graduation to efficiently supervise the work. |
| learning strategies Teaching and .21 |
| Providing the student with manual skills and qualifying him to carry out construction and building works so that he will be qualified upon graduation to efficiently supervise the work. The strateg |
| Course structure .22 |

(suggested) Study plan

Second academic year

| Evaluation method | Learning method | Name of the unit or topic | Required learning outcomes | hours | the week |
|---|---|---|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| **+Oral exams Editorial** | **Lecture + practical examples laboratory +** | **Foundation planning, using surveying equipment** | **Foundation planning** | 4 | the first |
| **=** | **=** | **Excavations, and supporting the sides of the .excavation** | **Excavations** | **8** | **the second** |
| **=** | **=** | **Making and strengthening a foundation for a wall or support** | **Making and strengthening a foundation for a wall or support** | **8** | **the third** |
| **=** | **=** | **How it works and the machines used for that. A scientific film for pile .works, types** | **And how it The works pillars** | **8** | **the fourth** |
| **=** | **=** | **Brick construction work, English bonding, German bonding, other types of .bonding** | **Brick building works** | **8** | **Fifth and sixth** |
| **=** | **=** | **Block construction (block, . .(thermostone** | **With blocks block, ) . .(thermostone** | **8** | **Seventh** |
| **=** | **=** | **Wooden template work, training on making a wooden template for a column, bridge, stairs and .roofs** | **Wooden mold work** | | **Eighth and ninth** |
| **=** | **=** | **Pouring regular and reinforced concrete and using manual mixing, as** | **Formwork of ordinary and** | **8** | **The tenth** |

| | | | | | |
|---|---|---|---|---|---|
| | | well as training on .automatic mixing | reinforced concrete | | |
| = | = | A scientific visit to the site of making a wooden mold .and pouring concrete | A scientific visit to a wooden block making site | 4 | And the eleven th |
| = | = | Reinforcing works, rebar, the correct way to use it, making reinforcement models for a column, roof, .and bridge | Reinforcing works | 4 | The twelft and h thirtee nth |
| = | = | works, iron structural Iron sections and aluminum sections, and when they are not available, a scientific .film is shown for that | Iron works | 8 | And the fourte enth |
| = | = | Application with cashier .and sticker | Application with cashier and sticker | 4 | Fiftee nth |
| = | = | preventing works, -Moisture training on the use of some repellent -moisture materials and how to use them optimally, such as asphalt felt, bituminous | Moisture proofing works | 4 | sixtee n And sevent eenth |

| | | | | | |
|---|---|---|---|---|---|
| | | materials, according to .what is available | | | |
| = | = | Showing a scientific film about thermal insulation materials: their types, how to use them, and their .benefits | Showing a scientific film about thermal insulation materials | 4 | And the eighte enth |
| = | = | Whitewashing works, whitewashing of a wall .using plaster | Whiteness works | 4 | ninete enth |
| = | = | :Ficus and prose works .Using cement mortar .1<br>-Using cement mortar .2 .Noura | Ficus and prose works | | Twent y and twent first- y |
| = | = | -Packaging works with Al .Furfouri Kashi | Cashier packaging works | 4 | twent y tow |
| = | = | covering works, wall Wall .covering using solutions | Wall covering works | 4 | twent y third |
| = | = | Secondary ceilings (Moroccan), making a model of a Moroccan | Secondary ceilings | 4 | twent y fourth |

| | | | | | |
|---|---|---|---|---|---|
| | | **ceiling, training on how to .install them** | | | |
| **=** | **=** | **Dyeing work (training on and how to how to use it adapt each type to the dyed .(surface** | **Painting works** | **4** | **25th** |
| **=** | **=** | **Sanitary works: Training the student on how to lay sewage pipes, clear water pipes, and the locations of .sinks, bathtubs , toilets, etc** | **: Health business** | **4** | **twent -y sixth** |
| **=** | **=** | **Electrical works: Training the student on making the rails and the correct finishing around them and how to install some electric lamps (establishing a light .(point and blocks** | **Electrical Works** | **4** | **27th** |
| **=** | **=** | **Mechanical works: making ventilation ducts (i.e. making aduct for a .(refrigerator** | **Mechanical works** | 4 | Twent -y eighth |
| **=** | **=** | **Road works: Foundation work and under the** | **Road works are foundation work** | **8** | **Twent nine-y and** |

| | | | | | |
|---|---|---|---|---|---|
| | | foundation for a road (as a .(model | | | -thirty nine |
| Course evaluation-11 .23 | | | | | |
| Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation, daily, oral, .monthly, written exams, reports, etc | | | | | |
| Resources of learning and teaching-12 .24 | | | | | |
| Najaf -the Technical Institute Website of | | | Required textbooks (methodology, (any | | |
| Building construction book by Martin Levon and Zuhair Sacco_<br>Videos available on the Internet, such as YouTube, which explain the _ not have a stages of work as a reality if the material is practical and does .theoretical aspect<br>For example, specialized videos are selected that explain the practical steps and common mistakes during work, according to the lecture, such as flattening, interior plastering, application of caulk, making wooden and ....iron molds, electrical and mechanical works, insulation, etc<br>In addition to lectures presented by the subject professor and specialized .assistant technicians, based on practical experience | | | Main references (sources) | | |
| | | | Recommended supporting books ,and references (scientific journals (....reports | | |
| Internet sites | | | Electronic references, Internet sites | | |

# Course Description Form(4)

| |
|---|
| Course Name .25 |
| second stage - Civil drawing |
| Course Code .26 |
| - |
| Semester/year .27 |
| annual |
| Date this description was prepared .28 |
| 2024_2_19 |
| Available attendance forms .29 |
| practical - Theoretical |
| Number of study hours (total)/number of units (total) .30 |
| 12 / 6 |
| Name of the course administrator (if more than one name is mentioned) .31 |
| Name rusul.hussein.inj@atu.edu.iq :Rusul Hussein : |
| objectives Course .32 |
| the executive maps Teaching the student the construction details and the details of all construction works so that he is qualified to understa their information to the work site and the workers to implement them. The student also learns the principles used in preparing and trans .sets of executive maps |
| Teaching and learning strategies .33 |
| details of all construction works so that he is qualified to understand Teaching the student the construction details and the The strategy the executive maps and transfer their information to the work site and the workers to implement them. The student also .learns the principles used in preparing sets of executive maps |
| Course structure .34 |
| Study plan (suggested) |

| Second academic year | | | | | |
|---|---|---|---|---|---|
| **Evaluation method** | **Learning method** | **Name of the unit or topic** | **Required learning outcomes** | **hours** | **the week** |
| **+Oral exams Editorial** | **Lecture + practical examples + laboratory** | **Introduction to structural drawing, terminological architectural and symbols, lines in maps, drawing models for building and construction materials, drawing scale, executive maps, and .types of brick and block construction** | **introduction** | 6 | the first |
| **=** | **=** | **Drawing the horizontal plan of a residential house or small building, the plan of the first floor, and determining sections and -the longitudinal and cross .the facades** | **Draw the horizontal chart** | **6** | **the second** |
| **=** | **=** | **sections -longitudinal and cross Drawing and detailed sections of the finishing .layers for floors, ceilings, and surfacing** | **Draw longitudinal and cross sections** | **6** | **the third** |
| **=** | **=** | **Introduction to sanitary drawing and structures for water and sanitary establishments and sanitary furniture, and then drawing the network of water** | **Introduction to health drawing** | **6** | **the fourth** |

| | | | | | |
|---|---|---|---|---|---|
| | | and sanitary establishments for the .previous horizontal plans | | | |
| = | = | Drawing the structural details of the inspection basins and linking them to .the health facilities network | Drawing the structural of the details inspection basins | 6 | Fifth |
| = | = | Drawing the structural details of the storage (drains) septic tanks and .attached to the house plan | Drawing the structural details of septic tanks and storage | 6 | VI |
| = | = | Introduction to concrete and construction principles, concrete bearing stresses and the necessary types of reinforcement steel, and drawing symbols used in maps and construction .details | Introduction to concrete and construction principles | 6 | Seventh |
| = | = | Concrete slabs, their types, the transmission of loads through them and the necessary reinforcement for them, along with drawing the structural .details of solid, unidirectional slabs | Concrete slabs | 6 | VIII |
| = | = | Drawing the structural details of solid .way slabs-two | Drawing the structural details of | 6 | Ninth |

| | | | | | |
|---|---|---|---|---|---|
| | | | -solid two .way slabs | | |
| = | = | -Drawing the structural details of one .way polygonal slabs-two and | Drawing the structural details of -and two -one way polygonal .slabs | 6 | The tenth |
| = | = | Introduction/Types of concrete joists and drawing the structural details of .simple support joists with sections | Introduction to tributaries | 6 | eleventh |
| = | = | structural details for Drawing .continuous joists and sections | Drawing the structural details of the joists | 6 | twelveth |
| = | = | Drawing the structural details of the monolithic tributaries along with their .sections | Drawing the structural details of the joists | 6 | Thirteenth |
| = | = | Introduction with a drawing of the structural details of precast prestressed .joists | Introduction with a drawing of the structural details of precast prestressed .joists | 6 | fourteenth |

| | | | | | |
|---|---|---|---|---|---|
| = | = | Drawing (key) for the joists of a building, a horizontal structural plan, .fixing tables and details of the joists and | Horizontal chart | 6 | Fifteenth |
| = | = | Drawing the structural details of the types of concrete columns, drawing the sections, and -longitudinal and cross reinforcement of the showing the .columns | Drawing the structural details of types of concrete columns | 6 | xvi twentieth |
| = | = | Drawing structural details and vertical sections to illustrate the bonding of reinforcing steel for columns of .successive floors | Drawing structural details and vertical sections | 6 | seventeenth |
| = | = | Introduction to foundations/their types and principles of operation, and drawing the structural details of the single foundation, combined foundation, .and wall foundations | Introduction to foundations | 6 | eighteen |
| = | = | Drawing the structural details of continuous foundations and mat .foundations | Drawing the structural details of continuous foundations and mat .foundations | 6 | nineteenth |

| | | | | | |
|---|---|---|---|---|---|
| = | = | **Drawing the structural details of the pile foundations and their types with the hat** | **Drawing the structural details of the foundations of the pillars** | **6** | **The twentie th** |
| = | = | **Identifying concrete stairs and their -types: a straight staircase, a half straight staircase, a spiral staircase, and .drawing their structural details** | **Getting to know concrete stairs** | **6** | **21st** |
| = | = | **Drawing structural details of joints in buildings, expansion joints, structural .joints** | **the Drawing structural details of joints in buildings** | **6** | **XXII** |
| = | = | **Drawing the structural details of the reinforced walls of elevators and .basement walls** | **Drawing the structural details of the reinforced walls** | **6** | twenty third |
| = | = | **Introduction to manufactured and prefabricated construction and drawing the structural details for connecting .prefabricated ceilings walls with** | **Introduction to prefabricated and manufacture** | **6** | **twenty fourth** |

| | | | | | |
|---|---|---|---|---|---|
| | | | d construction | | |
| = | = | Introduction to steel structures, their sections, tables, and how to obtain specifications and details of their .sections | Introduction to steel structures | 6 | 25th |
| = | = | Drawing the structural details for the connection of steel parts according to .their load bearing | Drawing the structural details of the connection of steel parts | 6 | -twenty sixth |
| = | = | Bonding of steel foundations and bases, of bonding of steel columns, bonding .joists to each other | Bonding of steel foundations and foundations | 6 | 27th |
| = | = | Details of the steel gable drawing and .the connection of its ribs | Steel gable drawing details | 6 | Twenty eighth- |
| = | = | computer and its applications Using the in structural drawing of reinforced .concrete structures | Using the computer and its applications in | 12 | Twenty nine- and -thirty nine |

| | | | | | |
|---|---|---|---|---|---|
| | | | construction drawing | | |
| Course evaluation-11 .35 | | | | | |
| Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly, written .exams, reports, etc | | | | | |
| Resources of learning and teaching-12 .36 | | | | | |
| Najaf -Website of the Technical Institute | | | Required textbooks (methodology, (any | | |
| RANGWALA, 2017: Civil Engineering Drawing -1<br>Edition 3rd -2<br>.: 938503930X (Including Computer aided building drawing ) -3 | | | Main references (sources) | | |
| ISBN-13: 978-9385039300 ISBN-10. | | | Recommended supporting books and references (scientific (....journals, reports | | |
| Internet sites | | | Electronic references, Internet site | | |

# Course Description Form(5)

| |
|---|
| Course Name .37 |
| The second phase - Buildings and factory construction |
| Course Code .38 |
| - |
| Semester/year .39 |

| |
|---|
| **annual** |
| **Date this description was prepared .40** |
| **2024_2_19** |
| **Available attendance forms .41** |
| **theoretical** |
| **Number of study hours (total)/number of units (total) .42** |
| **4 / 2** |
| **Name of the course administrator (if more than one name is mentioned) .43** |
| **Name nabeelkl@atu.edu.iq : AL /Nabil Kaftan :** |
| **objectives Course .44** |
| **traditional and manufactured buildings, the Providing the student with the necessary information about the stages of implementation of .works that fall within each stage, and the appropriate construction machines for each work** |
| **Teaching and learning strategies .45** |
| **supervise their implementation, and teach the student the Enabling the student to organize the site, direct the works, and .basic principles and supervision of factory construction** **The strategy** |
| **Course structure .46** |

**Study plan (suggested)**

**Second academic year**

| Evaluation method | Learning method | Name of the unit or topic | Required learning outcomes | hours | the week |
|---|---|---|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| +Oral exams<br>Editorial | Lecture + practical examples + laboratory | Introduction to the methods of implementing construction projects and the relevant parties and the tasks of each member of the construction project team, .technicians especially the | Implementing construction projects | 6 | the first |
| = | = | Organizing and planning the work site and the factors that affect it, along with preparing a plan for the work site for a specific project | Organizing and planning the work site | 6 | the second |
| = | = | Earthen excavations, methods of supporting the sides of excavations, excavation of basements | Earth excavations | 6 | the third |
| = | = | Techniques used to withdraw construction groundwater during | Techniques used to withdraw groundwater | 6 | the fourth |
| = | = | Dictations of dirt and the correct methods for making them, layers of roads and methods of implementing them | Earth dictates | 6 | Fifth |
| = | = | preventing layers for -Moisture both basements and walls, flatness | Moisture repellent layers | 6 | VI |

| | | | | | |
|---|---|---|---|---|---|
| = | = | Construction of walls with bricks, types of bricks, methods of joining, seams | Building walls with bricks | 6 | Seventh |
| = | = | Building walls with stone (types of stone preparation, types of (connection, joints | Building walls with stone | 6 | VIII |
| = | = | Building walls with construction blocks (types of blocks and their .(specifications | Building walls with construction blocks | 6 | Ninth |
| = | = | All types of interior wall .finishing techniques | Interior wall finishing techniques | 6 | The tenth |
| = | = | Techniques for finishing external .walls of all kinds | Techniques for finishing walls from the outside | 6 | eleventh |
| = | = | Methods of finishing floors for the ground floor, other floors .and ceilings | Methods of finishing floors | 6 | twelveth |
| = | = | Thermal insulation techniques | Thermal insulation techniques | 6 | Thirteenth |
| = | = | Concrete formwork (types, (requirements, components | Concrete molds | 6 | fourteenth |

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|---|---|---|---|---|---|
| = | = | Lifting molds, causes of mold collapse, sliding molds and related techniques | Uploading templates | 6 | Fifteenth |
| = | = | Scaffolding (types, components, (safety factors | Scaffolding | 6 | sixteen |
| = | = | Secondary ceilings (types and methods of installing them) and installing air ducts | Secondary ceilings | 6 | seventeenth |
| = | = | Sanitary installations (pure sewage), types of pipes ,water used for each, and methods of .connection and installation | Health establishments | 6 | eighteen |
| = | = | Doors and windows (types, (requirements, components | Doors and windows | 6 | nineteenth |
| = | = | Joints in buildings (structural expansion joints), details ,joints of each type and methods of implementation | Joints in buildings | 6 | The twentieth |
| = | = | cost construction and ways -Low to rationalize costs (goals, requirements, construction .(methods | Horizontal curves | 6 | Twenty first-and -twenty second |

| | | | | | |
|---|---|---|---|---|---|
| = | = | **Factory construction (properties, (supplies** | **is low Construction cost** | **6** | **twenty third** |
| = | = | **The different types of factory construction and the characteristics of each type** | **Different types of factory construction** | **6** | twenty fourth |
| = | = | **Components of the factory construction plant and production method** | **Components of the factory construction and production plant method** | **6** | **25th** |
| = | = | **Details of structural members in manufactured construction and installing them methods of** | **Details of structural members in factory construction** | **6** | **Twenty sixth- and -twenty seventh** |
| = | = | **Joints in manufactured construction (types, components (and methods of implementation** | **Joints in factory construction** | **6** | **Twenty eighth-** |
| = | = | **Methods of transportation in elevators (types, ,buildings, stairs components, construction (methods** | **Methods of transportation in buildings** | **6** | **XXIX** |
| = | = | **Fire resistance of buildings and .fire control systems** | **Fire resistance of buildings** | **6** | **thirty** |
| | | | | | **Course evaluation-11 .47** |

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|---|---|
| student, such as daily preparation, daily, oral, monthly, written Distribution of the grade out of 100 according to the tasks assigned to the .exams, reports, etc | |
| Resources of learning and teaching-12 .48 | |
| Najaf -Website of the Technical Institute | Required textbooks (methodology, if any) |
| Zuhair Sako -book Building construction -1<br>Ayoub Sabry -Book Construction Equipment -2<br>Prefabricated construction brochure -3 | Main references (sources) |
| .Lectures given by the professor | Recommended supporting books and references (scientific journals, reports....) |
| Internet sites | Internet sites ,Electronic references |

# Course Description Form(6)

| |
|---|
| Course Name .49 |
| second stage - (2) Computer applications |
| Course Code .50 |
| - |
| Semester/year .51 |
| annual |
| Date this description was prepared .52 |
| 2024_2_19 |
| Available attendance forms .53 |
| practical -Theoretical |
| Number of study hours (total)/number of units (total) .54 |
| |

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|---|---|
| **6 / 3** | |
| **Name of the course administrator (if more than one name is mentioned) .55** | |
| **:AMIL - AL / Raghad Mahdi Muslim : the nameraghad.muslim@atu.edu.com** | |
| **objectives Course .56** | |
| **.made systems and their applications in completing civil drawings-Teaching the student how to use ready** | |
| **Teaching and learning strategies .57** | |
| **.made systems and their applications to complete civil fees-use ready will be able to The student** | **The strategy** |
| **Course structure .58** | |

**Study plan (suggested)**

**Second academic year**

| Evaluation method | Learning method | Name of the unit or topic | Required learning outcomes | hours | the week |
|---|---|---|---|---|---|
| **+Oral exams Editorial** | **Lecture + practical examples + laboratory** | **A general review of AutoCAD** | **A general review of AutoCAD** | 3 | the first |
| **=** | **=** | **Return menu applicationsDraw , Modify ,Osnap .** | **applications-Re** | **3** | **the second** |
| **=** | **=** | **Complete dimensions, writing, and summary viewing .** | **Complementary dimensions** | **3** | **the third** |

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|---|---|---|---|---|---|
| = | = | Principles of drawing in .three dimensions List of cortical trigrams Surface . | Principles of drawing in three dimensions | 3 | the fourth |
| = | = | List ofsolids . | List of triangular drawing | 3 | Fifth |
| = | = | Applications on commandsExtrad , Revolve_Slice . | Applications on commands Extrad ,Revolve_Slice . | 3 | VI |
| = | = | Solidediting drawing . revisions | Drawing revisions | 3 | Seventh |
| = | = | Applications about ordersUnion ,Subtruct . | Applications about orders Union ,Subtruct . | 3 | VIII |
| = | = | CompleteSolid editing commands . | CompleteSolid editing commands | 3 | Ninth |
| = | = | Create a simple building .in three dimensions | Create a simple building in .three dimensions | 3 | The tenth |
| = | = | Completion of the .previous building | Complete the previous building | 3 | eleventh |
| = | = | Making a model of a horizontal section in a building (residential .house) and furnishing it | Make a model of a horizontal section | 3 | twelveth |

| | | | | | |
|---|---|---|---|---|---|
| = | = | Complete the previous .form | .Complete the previous form | 3 | Thirteenth |
| = | = | Making a longitudinal sectional model in a building (residential .house) with furnishing | Make a model | 3 | fourteenth |
| = | = | Rendering design . principles | Design principles | 3 | Fifteenth |
| = | = | .scene Add lighting to the | Add lighting to the scene | 3 | sixteen |
| = | = | Adding materials to .surfaces | Adding materials to surfaces | 3 | seventeenth |
| = | = | Manufacture of display .materials | Manufacture of display materials | 3 | eighteen |
| = | = | Other effects in the scene: night lighting, .backgrounds | Influences | 3 | nineteenth |
| = | = | A project to create a storey -model of a multi building with the addition of other accessories: trees, cars, ...people | project | 3 | The twentieth |

| | | | | | |
|---|---|---|---|---|---|
| | | A simple introduction to the parallel programs for ) AutoCAD3DMax .( | | | |
| = | = | Using additional processors for the -completed image AutoCAD using the Photo Shop program . | processors for the Using completed image | 30 | one-Twenty ..... thirty |

| | |
|---|---|
| Course evaluation-11 .59 | |
| preparation, daily, oral, monthly, Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily .written exams, reports, etc | |
| Resources of learning and teaching-12 .60 | |
| Najaf -Website of the Technical Institute | Required textbooks (methodology, if any |
| by Nasser Hassan Ismail book3D AutoCAD -4<br>3d max blue box -2020 revit model design iteration turn the page -5<br>. based on practical experience Lectures given by the professor -6<br>based on ,3D graphics Scientific competition between students through -7<br>.creativity and distinction | Main references (sources) |
| ) Other design engineering programs3d max, revit, lumion, sketchup) | books and Recommended supporting references (scientific journals, (....reports |
| Internet sites | Electronic references, Internet sites |

# Course Description Form(7)

| |
|---|
| Course Name .61 |
| stage second - Quantity surveying |
| Course Code .62 |
| - |
| Semester/year .63 |
| annual |
| Date this description was prepared .64 |
| 2024_2_19 |
| Available attendance forms .65 |
| practical-Theoretical |
| Number of study hours (total)/number of units (total) .66 |
| 6 / 3 |
| (than one name is mentioned Name of the course administrator (if more .67 |
| : Email / Sabah Nouri : Namesabah.saaid.inj@atu.edu.iq |
| objectives Course .68 |
| . Calculating quantities and analyzing prices and dimensions for construction works |
| Teaching and learning strategies .69 |
| student to how to calculate the quantity of construction items involved in the implementation of facilities Introducing the The strate<br>and buildings, as well as beams, and analyzing those quantities into their primary resources with the principles of<br>.well as contracting work, specifications, and engineering project management calculating prices and costs, as |
| Course structure .70 |

**Study plan (suggested)**

**Second academic year**

| Evaluation method | Learning method | Name of the unit or topic | Required learning outcomes | hours | the week |
|---|---|---|---|---|---|
| +Oral exams Editorial | Lecture + practical examples + laboratory | Definitions of estimation, its purpose, the foundations on which estimation is based, and the benefits expected from the .estimation process | Definitions of guesswork | 6 | first the |
| = | = | Types of estimation, units of measurement used for all construction paragraphs, table .of quantities | Types of estimation | 6 | the second |
| = | = | Calculating the quantity of earthworks for the foundations of facilities (buildings) (various types of foundations) and explaining its schedule of quantities, mentioning the unified standard guide for these works, their specifications, and price .analysis | Calculating the amount of earthworks for the foundations of facilities | 6 | The third and fourth |

| | | | | | |
|---|---|---|---|---|---|
| = | = | Calculating the quantity of structural sections under the moisture barrier (squares, foundation concrete, cubes), mentioning the unified standard guide for these works, their specifications, and their .schedule of quantities | Calculating the amount of structural sections under the moisture barrier | 6 | and Fifth sixth |
| = | = | Calculating the quantity of structural parts above the moisture barrier (badlo), including moisture barrier building above the ,concrete moisture barrier (bricks and concrete blocks), and mentioning the unified standard guide for its height, specifications, and its table of .quantities | Calculating the amount of structural sections above the moisture barrier | 6 | Seventh and eighth |
| = | = | Calculating the quantity of concrete, rebar, and wooden formwork for foundations (structural buildings with wall foundations and pillar foundations), and mentioning | Calculate the amount of concrete | 6 | The ninth tenth and |

| | | | | | |
|---|---|---|---|---|---|
| | | the unified standard guide for .their height and specifications | | | |
| = | = | Calculating the quantity of concrete, reinforcing steel , and wooden molds for connecting bridges in structural buildings below the level of the basement and bridges above the openings, analyzing the prices, mentioning the unified and standard guide for the scope of .these works | Calculate the amount of concrete | 12 | eleventh And the twelfth |
| = | = | Calculating the quantity of concrete, rebar, and wooden molds for columns of all types, analyzing their prices and unified mentioning the standard guide and .specifications | Calculate the amount of concrete | 6 | Thirteenth |
| = | = | Calculating the quantity of concrete, rebar, and wooden molds for various concrete works in special shapes, such .as domes and arches | Calculate the amount of concrete | 6 | fourteenth |

| | | | | | |
|---|---|---|---|---|---|
| = | = | Calculating the quantity of concrete, rebar, and wooden molds for various concrete works in special shapes, such .as domes and arches | Calculate the amount of concrete | 6 | Fifteenth the And sixteenth |
| = | = | of Calculating the quantity concrete, wooden molds, and reinforcing steel for all types of stairs, analyzing prices, and mentioning the unified standard guide for their height .and specifications | Calculate the amount of concrete | 6 | seventeen th |
| = | = | Calculating the quantity of secondary roofing works of all kinds, and flattening works for all its sections (gear, paddocks, and stayers), and mentioning the unified standard guide for .their height and specifications | Calculating the quantity of secondary roofing ,works of all types | 6 | eighteen |
| = | = | Calculating the quantity of finishing works (finished, whitewashing, spreading, and dyeing) and the furfural casing, analyzing the prices, and mentioning the unified standard guide for their type, | Calculating the amount of finishing work | 12 | nineteent h the And twenty |

| | | | | | |
|---|---|---|---|---|---|
| | | the table of specifications, and .quantities | | | |
| = | = | Calculating the quantity of flooring work, casing, casing work, and covering the facades with alabaster and plaster, and mentioning the unified standard guide, its and the table of ,specifications .quantities | Calculating the amount of flooring work | 6 | 21st |
| = | = | Calculating the quantity of electrical and mechanical foundation works and mentioning the unified standard guide for its scope, and schedule of ,specifications .quantities | Calculating the amount of electrical and mechanical installation work | 6 | XXII |

| | | | | | |
|---|---|---|---|---|---|
| = | = | **Calculating the quantity of water and sanitary foundation works, analyzing and mentioning the unified ,standard guide for its scope specifications, and schedule of .quantities** | **Calculating the amount of water and sanitary installation works** | **6** | twenty third |
| | | **Calculating the quantity of water and sanitary foundation works (walls and ceilings) and explaining their specifications, schedule of quantities, and the the unified standard guide for .that** | **Calculating the amount of water and sanitary installation works** | **6** | twenty fourth |
| = | = | **Calculating the quantity of works and some items of steel structures and analyzing their prices, dimensions and schedule of quantities** | **Calculating the amount of work and some items of steel structures** | **6** | **25th** |
| = | = | **Contracts, contracting and contract organization, application books, tender form and instructions for contractors, maintenance** | **Contracts, contracting and contract organization, submission books** | **6** | **-twenty sixth** |

| | | | | | |
|---|---|---|---|---|---|
| | | and how period and advances .to calculate them | | | |
| | | Definitions of management, interpersonal relations, organization, cadre responsibilities, organization in projects, site planning and control, and engineering .management of projects | Definitions in management and relationships between individuals | 6 | the And -twenty seventh |
| = | = | Project scheduling: work progress schedule, arrow wire .diagrams, and critical path | Project scheduling | 12 | -Twenty eighth and -twenty ninth |
| = | = | Some applications for calculating the quantities of construction paragraphs using the computer | Some applications for calculating the quantities of construction paragraphs using the computer | 6 | thirty |

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|---|---|
| Course evaluation-11 .71 | |
| as daily preparation, daily, oral, monthly, written Distribution of the grade out of 100 according to the tasks assigned to the student, such .exams, reports, etc | |
| Resources of learning and teaching-12 .72 | |
| Najaf -Website of the Technical Institute | Required textbooks (methodology, if an |
| according to the methodological book (Quantity Lectures given by the professor -1 (Surveying Book | Book of systematic quantitative surveyi |

| | |
|---|---|
| .Related sources and books in Arabic, English, and the Internet -2 | |
| | Recommended supporting books and references (scientific journals, (....reports |
| Internet sites | references, Internet sites Electronic |

## Course Description Form(8)

| | |
|---|---|
| | Course Name .73 |
| second phase – Project | |
| | Course Code .74 |
| - | |
| | Semester/year .75 |
| annual | |
| | Date this description was prepared .76 |
| 2024_2_19 | |
| | Available attendance forms .77 |
| practical | |
| | (total)/number of units (total) Number of study hours .78 |
| 4 / 2 | |
| | Name of the course administrator (if more than one name is mentioned) .79 |
| : name / Name | |
| | objectives Course .80 |
| .work Teaching students how to conduct research and practical and applied projects in various fields of | |
| | Teaching and learning strategies .81 |
| Teaching the student how to search scientific sources and how to conduct research and projects with the help of specialized professors in the department, and to utilize the laboratories and equipment of the department and | The strategy |

| | |
|---|---|
| state departments, according to the available capabilities and in a manner institute, as well as equipment in .commensurate with the nature of the project | |

## Course Description Form(9)

| |
|---|
| Course Name .82 |
| second stage - Construction machines |
| Course Code .83 |
| - |
| Semester/year .84 |
| annual |
| description was prepared Date this .85 |
| 2024_2_19 |
| Available attendance forms .86 |
| theoretical |
| Number of study hours (total)/number of units (total) .87 |
| 4 / 2 |
| Name of the course administrator (if more than one name is mentioned) .88 |
| : Email / Maha Aboudi : Namemaha.subi@yahoo.com |
| objectives Course .89 |
| . .Determine the productivity of machines and their operating costs and supervise their proper completion of work |
| Teaching and learning strategies .90 |
| .operating costs and supervise their proper completion of work Determine the productivity of machines and their The strategy |
| Course structure .91 |

| Study plan (suggested)<br><br>Second academic year | | | | | |
|---|---|---|---|---|---|
| **Evaluation method** | **Learning method** | **Name of the unit or topic** | **Required learning outcomes** | **hours** | **the week** |
| **+Oral exams<br>Editorial** | **Lecture + practical<br><br>examples + laboratory** | **Construction equipment, the importance of machines, ways to obtain them, and the advantages and disadvantages of owning or renting machines, .with a scientific film shown** | **Construction equipment, the importance of machines** | 2 | the first |
| **=** | **=** | **Calculating the costs of owning machines (costs of obsolescence, investment, .(maintenance and repair** | **Calculating the costs and ownership of machines** | **2** | **the second** |
| **=** | **=** | **Calculating the costs of owning machines (costs of obsolescence, investment, .(maintenance and repair** | **Calculating the costs and ownership of machines** | **4** | **The<br><br>third and fourth** |
| **=** | **=** | **Engineering foundations for ,engineering machinery work** | **Engineering foundations for** | **2** | **Fifth** |

| | | | | | |
|---|---|---|---|---|---|
| | | including (resistance to .(movement and the effect of tilt | engineering machinery .work | | |
| = | = | Complementing the engineering foundations of engineering machinery work the effect of elevation, swelling ) ...contraction of soil on and | Complementing the engineering foundations of engineering machinery work | 2 | VI |
| = | = | The quarry (dozer, including: description of the machine, its types, productivity calculation) .with a scientific film shown | The quarry | 2 | Seventh |
| = | = | Loading shovel (shovel), types, difference including (its between them, productivity ,calculation, raking work cycle | Loading shovel (shake) | 2 | VIII |
| = | = | A scientific visit to one of the business sites that has different .machines | A scientific visit to one of the business sites that has different .machines | 2 | Ninth |
| = | = | Drilling machines, total drilling rigs, face drilling rigs .with scientific film showing | Drilling machines | 2 | Thetenth |
| = | = | Drilling machines (back shovel, oyster ,waterwheel shovel | Drilling machines (back | 2 | eleventh |

| | | | | | |
|---|---|---|---|---|---|
| | | shovel) with a scientific film .shown | shovel, waterwheel shovel, oyster (shovel | | |
| = | = | Transport unit machines, paved and unpaved road trucks, classification of trucks according to multiple factors, tippers, productivity calculation with a scientific film .showing | Transport ,units machines | 2 | twel veth |
| = | = | Balancing the number of tippers with the size of drilling machines, lorries, locomotives and trailers, and railway .trucks | Balancing the number of tippers | 2 | Thi rtee nth |
| = | = | The stands include (their types benefits, along with and productivity calculations) and .a scientific film is shown | Terraces | 2 | four teen th |
| = | = | Types of skimmers, their benefits, and productivity calculations, with a scientific .film shown | Skimmers | 2 | Fift eent h |
| = | = | Sipper productivity: Use the scraper performance chart to .calculate productivity | Using the skimmer performance chart to | 2 | sixt een |

| | | | | | |
|---|---|---|---|---|---|
| | | | calculate .productivity | | |
| = | = | A scientific visit to a business site with a scientific film .showing | A scientific visit to one of the business sites | 2 | seventeenth |
| = | = | Soil compaction machines, their importance includes their types and places of use, along .with showing a scientific film | Soil compacting machines | 2 | eighteen |
| = | = | Complementing the forging machines and calculating productivity, pressure bulb .theory for distributing weights | Ironing machines and productivity calculations | 2 | nineteenth |
| = | = | Complementing the ironing machines with vibrating rollers, calculating the the rollers productivity of | Vibrating rollers, calculating the productivity of rollers | 2 | The twentieth |
| = | = | Material mixing equipment for concrete works with a scientific film showing | Material mixing equipment for concrete works | 2 | 21st |
| = | = | Concrete compacting and transportation polishing equipment | Concrete compacting and polishing transportation equipment | 2 | XXII |

| | | | | | |
|---|---|---|---|---|---|
| = | = | **Asphalt production plants, .their types and specifications** | **Asphalt production .plants** | **2** | twe nty third |
| = | = | **Specifications of asphalt spreaders, spreader speed, spreaders, with a types of .scientific film shown** | **Specifications of asphalt spreaders** | **2** | twe nty four th |
| = | = | **Scientific visit to asphalt .production plants** | **Scientific visit to asphalt production .plants** | **2** | **25th** |
| = | = | **Trench types, calculating production rates and showing .a scientific film** | **Trenches** | **2** | **twe -nty sixt h** |
| = | = | **Tunnels, their importance and types, with a scientific film .shown** | **Tunnels** | **2** | **And the twe -nty seve nth** |
| = | = | **Digging tunnels with mechanical excavators, ventilating the tunnels and .film showing a scientific** | **Tunnels with mechanical excavators** | **4** | **Twe -nty eigh th** |
| = | = | **Conveyor belts, calculation of transportation costs with conveyor belts, parts of conveyor belts** | **Conveyor belts** | **2** | **XXI X** |

| | | | | | |
|---|---|---|---|---|---|
| = | = | The use of modern control systems in construction the machines, with presentation of a special .scientific film about them | Modern control systems in construction machines | 2 | thir ty |

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|---|
| Course evaluation-11 .92 |
| Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly, written .exams, reports, etc |
| Resources of learning and teaching-12 .93 |

| | |
|---|---|
| Najaf -Website of the Technical Institute | Required textbooks (methodology, if any |
| Construction planning methods and equipment (Part One) - 1<br>Ezzi-Translated by Dr. Muhammad Ayoub Sabri Al<br>Guessing: by Medhat Fadil -2 | Main references (sources) |
| | Recommended supporting books and references (scientific journals, (....reports |
| Internet sites | Electronic references, Internet sites |

## Course Description Form(10)

| |
|---|
| Course Name .94 |
| Phase Two - Surveying |
| Course Code .95 |
| - |
| Semester/year .96 |
| annual |
| Date this description was prepared .97 |

| | |
|---|---|
| **2024_2_19** | |
| **Available attendance forms .98** | |
| **practical -Theoretical** | |
| **Number of study hours (total)/number of units (total) .99** | |
| **6 / 3** | |
| **(mentioned Name of the course administrator (if more than one name is .100** | |
| **: Amil- Al / Munqith Sadiq :Name** | |
| **objectives Course .101** | |
| | |
| **Teaching and learning strategies .102** | |
| | **The strategy** |
| **Course structure .103** | |

**Study plan (suggested)**

**Second academic year**

| Evaluation method | Learning method | Name of the unit or topic | Required learning outcomes | hours | the week |
|---|---|---|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| +Oral exams<br>Editorial | Lecture + practical examples + laboratory | Identifying the theodolite device/its parts, uses, types, installing the device, reading the horizontal and vertical .directions of the various types | Getting to know the theodolite .device | 2 | the first |
| = | = | Checking and adjusting the theodolite device for all types of vertical and horizontal examinations, then finding the .s constant'device | Checking and adjusting the theodolite device | 2 | the second |
| = | = | Methods for measuring horizontal angles with a .theodolite device | Methods of measuring horizontal angles | 4 | the third |
| = | = | Polygons, types of polygons, .their purposes, and uses | ribbing | | the fourth |
| = | = | Measure and correct the interior horizontal angles of a .closed polygon | Measure horizontal angles | 2 | Fifth |
| = | = | Methods of measuring the horizontal distances of the .sides of a polygon | Methods of measuring the horizontal distances of the | 2 | VI |

| | | | | | |
|---|---|---|---|---|---|
| | | | sides of a .polygon | | |
| = | = | Drawing closed and open .polygons | Drawing closed and open .polygons | 2 | Sev enth |
| = | = | Raising beams for polygons using a theodolite device and .tape | Raising beams for polygons | 2 | VIII |
| = | = | Calculating the horizontal vertical components and components of the sides of a polygon and calculating the .coordinates | Calculate horizontal components and vertical components | 2 | Nint h |
| = | = | Calculating the horizontal components, vertical components, and coordinates .of an open polygon | Calculate horizontal components and vertical components | 2 | The tent h |
| = | = | Methods for measuring vertical angles with a .theodolite device | Methods of measuring vertical angles | 2 | elev enth |
| = | = | Finding the height of a building (target) that can be reached using the theodolite device | Find the height of a building | 2 | twel veth |

| | | | | | |
|---|---|---|---|---|---|
| = | = | **Finding the height of a building (target) that cannot be reached using a theodolite device** | | **2** | **Thirteenth** |
| = | = | **Finding the height of a building (target) by measuring three angles of elevation or a theodolite depression using device** | **Find the height of a building** | **2** | **fourteenth** |
| = | = | **Measuring the length of an -inaccessible building measuring the horizontal angle .between two walls** | **Measuring the length of an inaccessible building** | **2** | **Fifteenth** |
| = | = | **Curves/types** | **Curves** | **2** | **sixteen** |
| = | = | **Horizontal curves (elements of a simple circular curve) and equations used in designing a .simple circular curve** | **Horizontal curves** | **2** | **seventeenth** |
| = | = | **Methods of projecting horizontal curves / method of columns based on tangents method of -(Baker method) columns located on the chord method of dividing -(offsets)** | **Methods of projecting horizontal curves** | **2** | **eighteen** |

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|---|---|---|---|---|---|
| | | **method of -the chords deviation angles** | | | |
| **=** | **=** | **curves using two Projecting .theodolite devices** | **Projection of curves** | **2** | **nine teen th** |
| **=** | **=** | **Drawing a road with its .horizontal curves** | **Draw a road with its horizontal curves** | **2** | **The twe ntie th** |
| **=** | **=** | **The main convex and concave curves/their length elements/calculating the of the vertical curve** | **Convex and concave principal curves** | **2** | **21st** |
| **=** | **=** | **Calculations related to the .vertical curve** | **Calculations related to the vertical curve** | **2** | **XXI I** |

| | | | | | |
|---|---|---|---|---|---|
| = | = | **Triangulation, its purposes, use, choosing triangulation .points, triangulation networks** | **Triangulation** | **2** | twe nty third |
| = | = | **Measure the base line for triangulation and make fortifications for measuring .with tape** | **Measure the base line for triangulation** | **2** | twe nty four th |
| = | = | **Measuring the horizontal triangulation angles of the network, making calculations and making the necessary .fortifications** | **Measuring the horizontal angles of a triangulation grid** | **2** | **25th** |
| = | = | **Tachymetric survey, types of .tachymeter devices** | **Tachymetric area** | **2** | **twe -nty sixt h** |
| = | = | **modern electronic Learn about measuring devices and how to use them to measure horizontal .and vertical distances** | **Identify modern electronic measuring devices** | **2** | **And the twe -nty seve nth** |
| = | = | **A general project about constructing a road or drainage channel, calculating the dirt needed to complete the** | **A general project on constructing a road** | **4** | **Twe -nty eigh th** |

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|---|---|---|---|---|---|
| | | project along with its .horizontal and vertical curves | | | |
| = | = | Introduction to the comprehensive station device. Using the total station device to measure the lengths of the sides of a polygon, interior .angles, and coordinates | Introduction to the comprehensive station device | 2 | Twe -nty nine and thir -ty nine |
| Course evaluation-11 .104 | | | | | |
| assigned to the student, such as daily preparation, daily, oral, monthly, written Distribution of the grade out of 100 according to the tasks .exams, reports, etc | | | | | |
| Resources of learning and teaching-12 .105 | | | | | |
| Najaf -Website of the Technical Institute | | | Required textbooks (methodology, if any | | |
| | | | Surveying methodology book | | |
| | | | Recommended supporting books and references (scientific journals, (....reports | | |
| Internet sites | | | Electronic references, Internet sites | | |