



Ministry of Higher Education and Scientific Research
Scientific Supervision and Evaluation Authority
Department of Quality Assurance and Academic Accreditation
Accreditation Department

Academic Program and Course

2024November

Introduction:

The educational program is a coordinated and organized package of courses that include procedures and experiences organized in the form of academic vocabulary whose main purpose is to build and refine the skills of graduates, making them qualified to meet the requirements of the labor market, which is reviewed and evaluated annually through internal or external audit procedures and programs such as the external examiner program.

The description of the academic program provides a brief summary of the main features of the program and its courses, indicating the skills that are being worked on to acquire for students based on the objectives of the academic program, and the importance of this description is evident because it represents the cornerstone in obtaining program accreditation and is written jointly by the teaching staff under the supervision of the scientific committees in the scientific departments.

This guide, in its second version, includes a description of the academic program after updating the vocabulary and paragraphs of the previous guide in light of the developments 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 description of the academic program circulated according to the letter of the Department of Studies T 3/2906 on 3/5/2023 regarding the programs that adopt the Bologna track as the basis for their work.

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

Concepts and terminology:

Academic Program Description: The description of the academic program 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 student to achieve, proving whether he has made the most of the available learning opportunities. It is derived from the description of the program.

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

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 (semester, yearly, Bologna track) whether it is a requirement (ministry, university, college and scientific department) with the number of study units.

Learning Outcomes: A compatible set of knowledge, skills and values acquired by the student 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 member to develop the student's teaching and learning, and they are plans that are followed to reach the learning goals. That is, describe all classroom and extra-curricular activities to achieve the learning outcomes of the program.

Academic Program Description Form

University Name:- Northern Technical University

College/Institute:- Technical Institute in Kirkuk

Scientific Department:- Department of Civil Technologies

Academic or vocational program name: - Technical diploma in civil engineering

Final Certificate Name:- Technical Diploma in (Building and Construction)
Technical Diploma in (Computer Drawing) Technical
Diploma in (Road Construction)

Academic System: Courses System

Date of preparation of the description: / 11 / 2024

File filling date: / 11 / 2024

Signature:-

Assistant Dean Name: Dr.Sawash
Shaheen

Signature:-

Head of Department Name :- Yasar
Hussein Ali

**The file was checked by the Quality Assurance and University Performance
Division Name of the Director of the Quality Assurance and University
Performance Division:
Date**

Approval of the Dean

(1) Program Vision
The Department of Civil Technologies seeks to prepare graduates in the field of implementing civil engineering works and infrastructure projects as intermediate cadres in government departments and companies implementing projects, as well as in the field of the private sector and benefit from specialization in the practical and applied field.

(2) Program Mission

Work on the preparation and graduation of technical competencies in the field of implementation of multidisciplinary civil engineering works, and in developing the knowledge balance in the field of implementing engineering techniques by implementing urban projects to serve the local community, emphasizing social and cultural values and responding to the requirements of the local market.

(3) Program Objectives

- Conducting laboratory tests for asphalt and all construction materials, as well as soil and concrete tests.
- The use of surveying devices and the implementation of surveys of road works and projects for civil engineering.
- Monitoring the operation of road equipment as well as calculating the efficiency and productivity of machinery and equipment related to roads and buildings.
- Computer drawing skill and Internet use skill.
- Implementation of paragraphs of civil works projects and all details of engineering plans.
- Drawing skill for geometric details (various types of drawings) on the drawing board.
- Computer drawing skill and application of the AUTO CAD program .
- Internet skill.

(4) Program Accreditation

There isn't any

(5) Other external influences

There isn't any

(6) Program Structure				
Unit of study for two semesters	Number of Courses Level Two	Unit of study for two semesters	Number of courses first level	Program structure for the three branches of study
30	15	30	15	University Requirements
--	--	21	8	Institute Requirements
163	45	87	22	Department Requirements
---	No	6	There is	Summer Training
193	60	144	45	Total

(7) Program Description				
Courses of the Institute	University Courses	Specialized Courses	Academic Branch	Year/Level
Mathematics (1) and (2) Laboratory / Mechanics Workshop	Arabic Language	Construction Materials	Building & Construction	2024-2025 / First
	English Language	Buildings & Factory Construction		
	Computer	Engineering Mechanics		
	Sports (optional)	Building materials and asphalt		
	Democracy and human rights	Engineering Drawing (1) and (2)		
		Area		
	Crimes of the Baath regime	Advanced Space	Building & Construction	2024 – 2025 / Second
	Professional Ethics	Concrete Technology(1) and (2)		
	Computer	Soil Mechanics(1) and (2)		
	Arabic Language	Civil Fee		
	English Language	Quantity Survey		
		Building Maintenance		
		Construction Machinery		
		Construction Techniques		
		Computer Applications(1) and (2)		
		Project (1) and (2)		
		Structural Drawing		
		Building Maintenance (Optional)		
Mathematics (1) and (2)	Arabic Language	Building Materials & Asphalt	Road Construction	2024-2025 / First
Laboratory / Mechanics Workshop	English Language	Road construction		
	Computer	Engineering Drawing (1) and (2)		
	Sports (optional)	Area		
	Democracy and human rights	Construction Materials		

		Engineering Mechanics		
	Crimes of the Baath regime	Soil Mechanics (1) and (2)	Road Construction	2024 – 2025 / Second
	Professional Ethics	Advanced Space		
	Computer	Concrete Technology (1) and (2)		
	Arabic Language	Roads and Traffic Engineering		
	English Language	Road Construction Equipment		
		Drawing roads and irrigation		
		Optional mapping		
		Guesswork and specifications		
		Computer Applications (1) and (2)		
		Project (1) and (2)		
		Railway and Airport Engineering		
Mathematics (1) and (2)	Arabic Language	Descriptive geometry	Computer Drawing	2024-2025 / First
Laboratory / Mechanics Workshop	English Language	Mechanical Drawing		
	Computer	Electrical drawing		
	Sports (optional)	Construction materials		
	Democracy and human rights	Area		
		Engineering Drawing (1) and (2)		
		Engineering Mechanics		
	Crimes of the Baath regime	Principles of architectural drawing	Computer Drawing	2024-2025 / II
	Professional Ethics	Principles of Structural Drawing		
	Computer	Health Fee		
	Arabic Language	Architectural Show		
	English Language	Quantity Survey		
		Computer Applications(1) and (2)		
		Project (1) and (2)	Computer Drawing	2024-2025 / II
		Optional mapping		
		Advanced architectural drawing		
		Advanced Structural Drawing		
		Drawing roads and irrigation		

(8) Expected learning outcomes of the program

(A) Knowledge

- Providing the student with the basics of civil engineering sciences.
- Developing the student's abilities with the skill of using the computer in preparing engineering plans.
- Conducting field and laboratory tests of materials used in buildings.
- Identify the devices used in the destructive and non-destructive tests of concrete.

(B) Skills	
• Enable the student to read engineering plans (of all kinds). • The student's ability to implement engineering designs. • Developing the skill of using the computer drawing program AutoCAD . • Teach the student how to take responsibility for managing the work group on site when constructing buildings and road projects.	
(c) Values	
• To acquire the concepts and basics of field and laboratory work . • Analyze the problems facing its employees and how to develop the necessary solutions . • Evaluate the proposed solutions and choose the optimal ones . • Supervising the implementation sites of engineering projects	

(9) Teaching and Learning Strategies	
• Lecture method, workshop, laboratory, summer training, methodological training, field visits, scientific film presentation, scientific visits.	
(10) Evaluation methods	
• Weekly reports and submission of engineering boards. • Daily and monthly exams and end-of-semester exams. • Discussions and dialogues on the topics studied.	

(11) Faculty							
Observations	Position, if any	Specialization	General Specialization	Certification Scientific title	Angel / Associate / Lecturer	Full Name	t
	Head of Department	Structural Engineering	Civil Engineering	Master Assistant Lecturer	angel	Yasar Hussein Ali Mardan	1
sabbatical doctorate		Water Resources Engineering	Civil Engineering	Master teacher	angel	Mustafa Najda Qasim Mustafa	5
sabbatical doctorate		Structural Engineering	Civil Engineering	Master Assistant Lecturer	angel	Qahtan Adnan Saber Hassan	6

Professional development of faculty members
Specialized courses, attending scientific seminars, seminars, presenting scientific developments electronically, preparing scientific research, participating in scientific conferences and conferences.

(12) Acceptance Criterion

- The total obtained by the student after passing the general exams for the sixth grade (biological or applied) or vocational.
- To be a graduate of the scientific or industrial branch (building and construction specialization or engineering drawing).
- The results of the medical examination that the student is healthy and fit to study in the department .
- Desire.

(13) The most important sources of information about the program

- (1) Concrete Technology / Jalal Bashir Sarsam
- (2) surveyor (william Irvan .
- (3) Construction materials / Yousef Al-Dawaf ,
- (4) Construction machines / Muhammad Ayoub Al-Ezzi .
- (5) Quantity Survey / Medhat Fadil Fathallah
- (6) Sources in the library of the Institute .
- (7) Resources available in the Institute's electronic library.
- (8) Resources available in the virtual library of the Ministry of Higher Education and Scientific Research .
- (9) Specialized sites on the Internet.
- (10) Shadow and perspective / Emad Muhammad Azhar .

(11)	Introduction to interior design / Engineer Motasem Azmi Al-Karbali.
(12)	Building construction / Zuhair Sako.
(13)	Building construction / D . Sharma

(14) Program Architecture				
Credit Hours		Course Name	Academic year	Grades
practical	theoretical			
13	15	Chapter One	2022 - 2023	The first Road Construction Branch
11	11	Chapter Two		
13	15	Chapter One	2022 - 2023	The first Building and Construction Branch
11	10	Chapter Two		
14	14	Chapter One	2022 - 2023	The first Computer Drawing Branch
17	9	Chapter Two		
15	14	Chapter One	2023 - 2024	The second Road Construction Branch
14	13	Chapter Two		
18	12	Chapter One	2023 - 2024	The second Building and Construction Branch
18	13	Chapter Two		
21	11	Chapter One	2023 - 2024	The second Computer Drawing
18	11	Chapter Two		

Curriculum Skills Planner (for three branches)

Please tick the boxes corresponding to the individual learning outcomes from the program under evaluation.

Learning outcomes required from the program

General and Transferable Qualification Skills (Other Employability-related Skills) and personal development)				Emotional and value goals				Program Skills Objectives				Cognitive goals				Basic or optional	Course Name	Course Code	Year / Level
4D	3D	2D	1D	4C	3C	2c	1C	4b	3b	2b	1b	4A	3A	2A	1A				
✓		✓			✓		✓		✓			✓	✓		✓	Specialist	Engineering Mechanics	CITB125	First level 2022-2023
	✓				✓				✓					✓		institute	mathematics	TIK110	
✓				✓				✓			✓	✓				Specialist	Construction materials	CITB120	
	✓				✓				✓					✓		university	Computer Principles	NTU102	
✓		✓			✓		✓		✓			✓	✓		✓	institute	Laboratory / Mechanics	TIK111	
			✓	✓		✓	✓	✓		✓	✓			✓	✓	Specialist	Engineering drawing	CITB122	
✓		✓			✓		✓		✓			✓	✓		✓	university	English	NTU101	
	✓				✓				✓					✓		university	Arabic language	NTU104	
																university	Human Rights	NTU100	
✓		✓			✓		✓		✓			✓	✓		✓	university	sport	NTU105	
	✓				✓				✓					✓		Specialist	space	CITB121	
			✓	✓		✓	✓	✓		✓	✓			✓	✓	university	democracy	NTU106	
	✓				✓				✓					✓		Specialist	Buildings & Factory	CITB127	

																	Construction		
		⌞			⌞				⌞		⌞	⌞				Specialist	Road construction	CITH127	
⌞		⌞			⌞		⌞		⌞			⌞	⌞		⌞	Specialist	Mechanical drawing	CITC126	
			⌞	⌞		⌞	⌞	⌞		⌞	⌞			⌞	⌞	Specialist	Descriptive geometry	CITC128	
	⌞				⌞				⌞					⌞		Specialist	Electrical drawing	CITC127	
			⌞	⌞		⌞	⌞	⌞		⌞	⌞			⌞	⌞	Specialist	Concrete	CITB221	Second stage 2023 - 2024
		⌞		⌞			⌞		⌞		⌞			⌞		Specialist	The soil	CITB222	
	⌞				⌞				⌞					⌞		Specialist	Quantity Survey	CITB229	
	⌞	⌞		⌞	⌞	⌞		⌞	⌞			⌞	⌞		⌞	Specialist	Computer Applications	CITB228	
			⌞	⌞		⌞	⌞	⌞		⌞	⌞			⌞	⌞	Specialist	Civil Fee	CITB230	
⌞		⌞			⌞		⌞		⌞			⌞	⌞		⌞	Specialist	Building Maintenance	CITB242	
	⌞				⌞				⌞					⌞		university	Professional Ethics	NTU201	
			⌞	⌞		⌞	⌞	⌞		⌞	⌞			⌞	⌞	Specialist	Structural drawing	CITB231	
⌞		⌞			⌞		⌞		⌞			⌞	⌞		⌞	Specialist	Construction Machinery	CITB233	
	⌞				⌞				⌞					⌞		Specialist	Construction Techniques	CITB232	
⌞					⌞				⌞			⌞			⌞	Specialist	Roads and Traffic Engineering	CITH233	
⌞	⌞		⌞	⌞	⌞		⌞	⌞			⌞	⌞	⌞	⌞		Specialist	Road	CITH231	

																	Construction Equipment		
			⌞	⌞		⌞	⌞	⌞		⌞	⌞			⌞	⌞	Specialist	Mapping	CITH242	
⌞		⌞			⌞		⌞		⌞			⌞	⌞		⌞	Specialist	Guesswork and specifications	CITH229	
	⌞				⌞				⌞					⌞		Specialist	Drawing roads	CITH230	
⌞		⌞			⌞		⌞		⌞			⌞	⌞		⌞	Specialist	Railway and Airport Engineering	CITH232	
			⌞	⌞		⌞	⌞	⌞		⌞	⌞			⌞	⌞	Specialist	Architectural Drawing	CITC221	
	⌞				⌞				⌞					⌞		Specialist	Health Fee	CITC231	
⌞	⌞			⌞	⌞			⌞	⌞	⌞	⌞		⌞		⌞	Specialist	Architectural Show	CITC225	

Academic Description of the First Level Courses

Course Description: Descriptive Geometry

This course description provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the student to achieve, proving whether he or she has made the most of the available learning opportunities. It must be linked to the description of the programme.

Northern Technical University / Kirkuk Technical Institute	1. Educational institution
Department of Civil Technologies / Computer Drawing Branch / Level I	2. University Department / Center
Descriptive geometry (CITC128)	3. Course Name/Code
Theoretical and practical	4. Programs in which he enters
Daily according to the lesson schedule	5. Available Attendance Forms
Course (Semester)	6. Semester / Year
5 hours * 15 weeks = 75 hours	7. Number of Credit Hours (Total)
11/ 4/ 2024	8. The history of preparation of this description
9. Course Objectives	
- Teaching students the basic principles of descriptive geometry.	
- Teaching students the importance and benefits of descriptive geometry in engineering applications.	
- Teaching students the correct foundations in expressing geometric shapes descriptively and spatially and providing them with the necessary skills for that.	
- Clarify the methods and possibilities of descriptive geometry.	

10. Course Structure					
Evaluation method	Method of education	Name of the unit/course or topic	Required Learning Outcomes	Number of Hours	Number of weeks
Assigning classroom and homework assignments	Theoretical lectures	Descriptive geometry	Technical Diploma	5	15 weeks
Creation of wooden and cardboard models	Follow-up of students during lectures				
Oral testsDaily and quarterly exams	Discussions with students				
Conduct final exams					

11. Infrastructure	
Vocabulary - Textbooks - External Resources - Internet	Required readings: ▪ Basic texts ▪ Course Books ▪ Other
	Special requirements (e.g. workshops, periodicals, software and websites)
	Social services (e.g. guest lectures, vocational training and field studies)

12.Acceptance	
Graduate of professional study or scientific branch, desire	Prerequisites
20	Minimum number of students
30	The largest number of students

13. Learning outcomes and teaching, learning and assessment methods	
A. Knowledge and understanding	
A1- The ability to draw geometric shapes and objects descriptively and spatially.	
A2- Preparing the student with self-learning, acquiring skills and developing his capabilities.	
A3- Developing engineering skills.	
B - Subject-specific skills	
B1 – The ability to choose the appropriate method of drawing and express it.	
B2- The ability to imagine spatially.	
B3- The ability to address problems and solve engineering problems descriptively.	
Teaching and learning methods	
1- Teaching descriptive geometry theoretically and practically.	2- Using available educational aids such as data show and smart board.
	3- The use of wooden and cartoon models.
Evaluation methods	
1- Assigning classroom and home duties. 2- Creating cartoon and wooden models. 3- Conducting daily and quarterly exams. 4 – Conducting final exams.	
C- Thinking skills	
C 1 The ability to choose the appropriate method of design and solve engineering problems.	
A2- Comparing the different drawing methods and choosing the most appropriate.	
C3- - The wide ability to imagine space.	
Teaching and learning methods	
1- Include the vocabulary of the descriptive engineering curriculum modern techniques and software in the theoretical and practical aspects. 2- Include the vocabulary of the curriculum applications and solve realistic problems.	
Evaluation methods	
1- Preparing reports for realistic engineering problems and how to address them 2- Including exam questions and homework issues that require the student to find the necessary solutions to them.	
d. General and transferable skills (other skills related to employability and personal development).	
D1- The ability to work with others with discipline within the same team.	

D2- Full awareness of the moral and practical responsibility of the work that the student will practice after graduation.

D3- The ability to present, discuss and defend ideas orally and in writing.

14- **Course Development Plan:** The development plan is carried out through studies submitted through the annual scientific plan for course development.

Practical vocabulary	Week
Vocabulary details	
Preface, definitions, types of projection.	First
Drop the point in the main planes and its function in the space.	Second
Rectal positions in space	Third
The positions of the rectum and finding its true length by the method of extroversion.	Fourth
The real length of the line by the method of height difference and the method of rotation.	V
Planar positions in vacuum.	Sixth
Rectal positions in space	Seventh
Applications on finding the real shape of the plane.	Eighth
Auxiliary levels and conditions.	Ninth
Find the coordinates of different geometric models	X
Introduction to models and surface members. Applications on the personnel of the shape (cube, cylinder)	Eleventh
Triangular, quadrilateral, pentagonal, and hexagonal prism personnel)	Twelfth
Full pyramid personnel (with application). Members of the missing and cut pyramid with an inclined plane.	Thirteenth
Individuals of the whole and truncated cone.	Fourteenth
Applications of descriptive geometry drawings using calculator.	Fifteenth

Course Description : Engineering Drawing

This course description provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the student to achieve, proving whether he or she has made the most of the available learning opportunities. It must be linked to the program description

Northern Technical University / Kirkuk Technical Institute	1-Educational Institution
Scientific Department of Civil Technologies / Branch (Roads + Building and Construction + Computer Drawing)	2- University Department / Center
Engineering Drawing (CITB123)	3. Course Name/Code
First Level – All Branches	4. Programs in which it enters
Daily attendance as per the weekly schedule	5. Available Attendance Forms
Course (Semester)	6-Semester/Year
3 Hour * 15 weeks = 45 hours	7- Number of study hours (total)
/ 4/ 2024	8. Date of preparation of this description
9. Course Objectives	

- | |
|---|
| <ul style="list-style-type: none">- Introducing the student to the importance of engineering drawing in the field of civil engineering and practical life.- Developing the student's ability on how to draw various engineering plans and objects.- Introducing the student to the tools of engineering drawing and how to use them in drawing engineering paintings. |
| <ul style="list-style-type: none">- Teaching the student how to draw geometric shapes, projections of bodies and sections of different types. |
| <ul style="list-style-type: none">- Teaching the student how to deal with computer programs for engineering drawing and how to draw simple plans using these programs. |

10. Course Structure					
Evaluation method	Method of education	Name of the unit/course or topic	Required Learning Outcomes	Number of Hours	Number of weeks
Quarterly Exams	Lectures	Engineering Drawing	Technical Diploma	3	15 weeks
Drawing paintings in the studio (Safia)	Follow-up students during manual drawing				
Drawing home paintings	Drawing relevant paintings in the studio				
Classroom activity, continuous attendance and non-absence					
11. Infrastructure					
Vocabulary - Textbooks - External Resources - Internet			Required readings: - Basic texts - Course Books - Other		
Training courses for state departments - participation in the advisory office			Special requirements (e.g. workshops, periodicals, software and websites)		
Exploratory studies for state departments - engineering consultancy			Social services (e.g. guest lectures, vocational training and field studies)		

12. Admission	
Scientific Graduate - Average - Physical Fitness	Prerequisites
20	Minimum number of students
30	The largest number of students

1- Learning outcomes and teaching, learning and assessment methods

A. Knowledge and understanding

- A1- Understand and apply the necessary geometric sections to complete the various plans.
- A2- Expressing ideas and engineering solutions in proportion to the illustrative plans.
- A3- Study and understand engineering maps in various fields of civil engineering.
- A4- Dealing with drawing using AutoCAD program and preparing maps and various designs for projects.
- A5- Learn how to draw projections of three-dimensional objects.
- A6- Learn how to draw sections of objects.

B - Subject-specific skills

- B1 – Increase the ability of students to imagine geometric objects and the way they are drawn.
- B2- Distinguishing between manual drawing and drawing using the computer and the ability to deal with it.
- B3- Gaining speed and great ability in drawing various engineering plans.

Teaching and learning methods

A full explanation of the subject, then practical and applied manual drawing, drawing using computers and appropriate programs.

Evaluation methods

Quarterly written exams, drawing paintings in the studio (class), drawing paintings and homework, classroom activity, continuous attendance and non-absence

C- Thinking skills

- C 1 - Development of thinking and imagination skills and the ability to draw engineering.
- C2- Developing scientific and methodological thinking skills.
- C3- Developing decision-making skills in the implementation of engineering projects.
- C4- Developing divergent thinking and visual thinking skills.

Teaching and learning methods

Explaining the lecture to a specific topic, drawing issues related to the topic in the studio, following up students during manual drawing and avoiding possible errors, answering all students' questions during the drawing process, discussions in small groups of students during drawing.

Evaluation methods

1- Semester exams (first and second semesters) 2- Drawing summer and home paintings 3- Classroom activity 4- Continuous attendance and non-absence 5- Final exams (theoretical and practical)

d. **General and transferable skills** (other skills related to employability and personal development).

D1- Use the calculator well.

D2- Using the AutoCAD program in all engineering fields.

D3- Speed of completion of drawings.

- 14- **Course Development Plan:** The development plan is carried out through studies submitted through the annual scientific plan for course development.

Practical vocabulary / engineering drawing (1)	Week
Vocabulary details	
Engineering drawing and its importance. Install the panels. Data table, use of drawing tools. Types of vertical, horizontal and oblique lines at multiple angles.	First
Geometric writing in Latin in vertical and italic style, Arabic language, and writing letters and words by free hand.	Second
Scale and variety of drawing examples of multiple geometric shapes with a variety of scales.	Third
Drawing the geometric operations of the line and triangle.	Fourth
Drawing the engineering operations of the circle N with drawing polygons inside and outside the circle.	V
Drawing the geometric processes of the oval shapes, with drawing geometric motifs and various decorative shapes.	Sixth
Types of conical sectors, drawing snails.	Seventh
Projection, definition, angle of projection, showing the three projections Explanation of the methods of projection with drawing the facades of simple bodies.	Eighth
Applications for various vertical and horizontal objects.	Ninth
Projection of various vertical and horizontal objects.	X
Vertical projection of objects containing inclined surfaces.	Eleventh
Vertical projection of objects containing cylindrical protrusions and cavities.	Second, third and fourteenth
Axial projection at an angle of (30) its definition and principles	Fifteenth

Practical vocabulary / Engineering Drawing (2)	Week
Vocabulary details	
Axial projection applications on simple objects.	First
Axial projection applications on objects with inclined surfaces.	Second
Applications of axial projection on objects with cylindrical protrusions and cavities.	Third and fourth
Axial projection applications are diverse using AutoCAD system.	V
The sections of their types and showing them on the projections with the dimensions placed on them	Sixth
Drawing cut objects in perspective with the placement of cutting lines and showing.	Seventh and eighth
Drawing objects cut in perspective state.	Ninth
Assembling projections and showing perspective of simple objects.	X
Assembling and showing perspective of simple objects.	Eleventh and twelfth

Collecting projections and showing perspective using the calculator for various objects.	Thirteenth
Collecting projections and showing perspective using the calculator for various objects.	Fourteenth
An idea of the principles, principles, symbols and terminology of architectural drawing.	Fifteenth

Course Description: Building and Factory Construction

This course description provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the student to achieve, proving whether he or she has made the most of the available learning opportunities. It must be linked to the description of the programme.

Northern Technical University / Kirkuk Technical Institute	1. Educational institution
Scientific Department of Civil Technologies / Building and Construction Branch	2. University Department / Center
Buildings and factory construction (CITB113)	3. Course Name/Code
Level I – Building & Construction	4. Programs in which he enters
daily	5. Available Attendance Forms
Course (Semester)	6. Semester / Year
2 hours * 15 weeks = 30 hours	7. Number of Credit Hours (Total)
/ 4 / 2024	8. The history of preparation of this description
9. Course Objectives	
- Introducing the student to the methods of implementing projects and related parties.	
- Introducing the student to the tasks of the building construction team.	
- Teaching the student how to moisture insulation the building for both basements and walls.	

- Introducing the student to the factory building, its components and the method of producing the details of the structural members.

10. Course Structure					
Evaluation method	Method of education	Name of the unit/course or topic	Required Learning Outcomes	Number of Hours	Number of weeks
Semester Exams	Lectures	Buildings & Factory Construction	Technical Diploma	2	15 weeks
Written tests					
Oral tests	Visit Sites				

11-Infrastructure	
Vocabulary - Textbooks - External Resources - Internet	Required readings: ▪ Basic texts ▪ Course Books ▪ Other
Training courses for state departments - participation in the advisory office	Special requirements (e.g. workshops, periodicals, software and websites)
Exploratory studies for state departments - engineering consultancy	Social services (e.g. guest lectures, vocational training and field studies)

12- Acceptance	
Scientific Graduate - Average - Physical Fitness	Prerequisites
20	Minimum number of students
30	The largest number of students

13. Learning outcomes and methods of teaching, learning and assessment	
A. Knowledge and understanding A1- Providing the student with the skill in attributing the aspects of excavations A2- Techniques used to withdraw groundwater during construction A3- Teaching the student how to create walls with building blocks A4- Techniques for finishing walls from the outside and from the inside of all kinds A5- Sustainable engineering and the factors affecting it	
B - Subject-specific skills B1 – Use of different types of moisture barriers B2- Knowing the methods of transportation in buildings (stairs and elevators) and knowing their types and methods of construction B3- How the joints work in the factory construction B4- Determining the impact of green buildings on the environment	
Teaching and learning methods	
1- Lecture style. 2 - Field visits. 3 - Student projects. 4 - Display of scientific films.	
Evaluation methods	
2- Oral Exams 2- Semester Exams (First and Second Semesters) 3- Final exams (theoretical)	
C- Thinking skills C1 - Identification of members of the construction projects team C2- Excavations and dirt spells and the correct ways to make them C3- Implementation of types of floors and ceilings C4- Concrete formwork and the reasons that lead to their collapse	
Teaching and learning methods	
1- Lecture Style 2 - Presentation of scientific films 3- Student projects, 4- Student Research	
Evaluation methods	
1- Oral tests 2- Semester exams (first and second semesters) 3- Laboratory reports Final exams (theoretical and practical)	
d. General and transferable skills (other skills related to employability and personal development). D1- Planning and organizing the work site with the preparation of work site plans for a specific project D2- Emphasis on the orientation towards sustainable engineering	

14. **Course Development Plan:** The development plan is carried out through studies submitted through the annual scientific plan for course development.

Theoretical vocabulary	Week
Vocabulary details	
Introduction to the methods of implementing construction projects and related parties The tasks of each of the members of the construction projects team, especially technicians, the organization and planning of the work site and the factors that affect this with the preparation of a work site plan for a specific project.	The first
Earth excavations, methods of supporting the sides of the excavation, digging basements, techniques used in the withdrawal of groundwater during construction, earth spelling and the correct methods of its work.	Second
Moisture and its damage, moisture blocker layers for both basements, walls and flatness.	Third
Building walls with bricks, brick parts used in construction, bonding methods, seaming, building walls with stone (types of stone preparation, types of bonding, joints)	Fourth
Building walls with structural blocks (types of blocks and their specifications).techniques for finishing walls from the outside of all kinds, techniques for finishing walls from the inside of all kinds	V
Explain the types of floors and ceilings and methods of implementation	Sixth
Methods of finishing the floors of the ground floor and other floors and ceilings. Thermal insulation technologies. Secondary ceilings (types and methods of installation).	Seventh
Concrete formwork (types, requirements, components), lifting formwork, the reasons that lead to the collapse of the formwork.	Eighth
Sanitary installations (clear water, sewage) types of pipes used for each of them and methods of connection and fixation. Electrical installations of buildings and their types.	Ninth
Doors and windows (types, requirements, components) Joints in buildings (structural joints, expansion joints) details of each type and methods of implementation	X
Methods of transportation in buildings, stairs, elevators (types, components, construction methods).	Eleventh
Factory construction (properties, supplies), the different types of factory	Twelfth

construction and the characteristics of each type	
Components of the factory construction laboratory and production method Details of the structural members in the factory construction and methods of installation	Thirteenth
Joints in factory construction (types, components, methods of implementation)	Fourteenth
Sustainable engineering – definition and factors affecting it	Fifteenth

Course Description : Area

This course description provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the student to achieve, proving whether he or she has made the most of the available learning opportunities. It must be linked to the description of the programme.

Northern Technical University / Kirkuk Technical Institute	1. Educational institution
Scientific Department Civil Technologies / Building and Construction Branch , Computer Drawing Branch and Road Construction Branch	2. University Department / Center
Area (CITB112)	3. Course Name/Code
The first level - building and construction / computer drawing / road construction	4. Programs in which he enters
daily	5. Available Attendance Forms
Course (Semester)	6. Semester / Year
6 hours * 15 weeks = 90 hours	7. Number of Credit Hours (Total)

/ 1/ 2024	8. The history of preparation of this description
9. Course Objectives	
- Teaching the student what he needs from the theoretical and practical foundations of the surveying subject.	
- Providing the student with the necessary skill to carry out civil engineering work using surveying devices. - As well as providing him with the necessary information about the details of surveying devices and methods of using them in important applications in civil engineering.	
- Teaching the student how to use the correction device and calculations related to various problems through practical exercises.	
- Providing the student with the skill of installing and dropping engineering works designed on the natural ground.	
- Teaching the student on the different measurement methods when there are obstacles.	

10. Course Structure					
Evaluation method	Method of education	Name of the unit/course or topic	Required Learning Outcomes	Number of Hours	Number of weeks
Semester Exams	Lectures	Area	Technical Diploma		15 weeks
Written tests	Practical exercises				
Oral tests	Visit Sites				
Reports					
Field exercises					

11. Infrastructure	
Vocabulary - Textbooks - External Resources - Internet	Required readings: ▪ Basic texts ▪ Course Books ▪ Other
Training courses for state departments - participation in the advisory office	Special requirements (e.g. workshops, periodicals, software and websites)
Exploratory studies for state departments - engineering consultancy	Social services (e.g. guest lectures, vocational training and field studies)

12. Acceptance	
Scientific Graduate - Average - Physical Fitness	Prerequisites
20	Minimum number of students
30	The largest number of students

13. Learning outcomes and methods of teaching, learning and assessment
A. Knowledge and understanding A1- Identify the tools used in field work, use them and how to overcome obstacles in measuring distances A2- Recognition of the leveling device

A3- Methods of calculating levels A4- Calculating the design levels of the road and drawing the longitudinal and transverse sections A5- Contour mapping A6- Calculation of circular and abbreviated deviations and correction of the interior angles of a closed polygon
B - Subject-specific skills B1 – Use simple tools in the field B2- Using the settlement device and arranging its readings in the settlement table B3- Calculating the levels by the method of rise and fall and the method of height of the device B4- Preparation of contour maps B5- Correcting the angles of polygons
Teaching and learning methods
1- Lecture style. 2- Laboratory 3- Presentation of scientific films 4- Field visits. 5 - Student projects. 6 - Field training.
Evaluation methods
3- Oral tests 2- Semester exams (first and second semesters) 3- Laboratory reports 4- Final exams (theoretical and practical) 5- Solving applied problems.
C- Thinking skills C1- Measuring horizontal distances across obstacles C2- Calculation of the levels of points by two methods and calculations for longitudinal settlement, mutual settlement and inverted settlement C3- Calculation of quantities for earthworks (digging and backfilling) C4- Contour Lines Calculations C5- Calculating the interior angles of polygons
Teaching and learning methods
1- Lecture Method 2- Laboratory 3- Presentation of scientific films 4- Field visits. 5- Civil workshops, 6- Summer training 7- Student projects, 8- Student research
Evaluation methods
1- Oral tests 2- Semester exams (first and second semesters) 3- Laboratory reports Final exams (theoretical and practical)
d. General and transferable skills (other skills related to employability and personal development). D1- Use of surveying tools in the field D2- Use of the leveling device D3- Installing the device and preparing it to work

D4- Implementation of engineering survey works

14. **Course Development Plan:** The development plan is carried out through studies submitted through the annual scientific plan for course development.

Theoretical vocabulary	Week
Vocabulary details	
Definition of area, its fields, its divisions, its uses, and units of measurement. Measuring horizontal distances on flat lands (routing process) Measuring the horizontal distance on irregular slope land.	The first
Measuring the horizontal distances on the slope lands (regular slope) (if the height difference is known, if you know the degree of slope of the earth, if you know the angle of slope of the earth). Erecting and projecting columns (erection methods and dropping methods), overcoming obstacles (obstacles) that hinder the measurement of horizontal distances.	Second
Scanning with tape (filler cases when lifting).	Third
Settlement definitions related to its purposes. How to calculate the levels of points by the method of the balance surface and solve examples.	Fourth
How to calculate the levels of points by the method of rise and fall and solve examples.	V
Double leveling The effect of earth spherical and optical refractions on leveling works. Inverted settlement Mutual settlement (reverse) with solving examples.	Sixth
Sources of errors in the settlement work The degree of accuracy The amount of error allowed. Longitudinal sections Drawing the longitudinal section solve examples .	Seventh
Cross sections Find the levels of cross section points Draw the cross section. Construction line Calculate the slope of the construction line Find the levels of the construction line points if the slope is known (drawing the proposed line for a project).	Eighth
Calculating land areas and cross sections using demarcation methods, mathematical laws and coordinates. Calculation of areas using the planometer.	Ninth

Calculate the volumes of the earth quantities for digging and backfilling. Checking and adjusting the settlement device balancing settlement lines (settlement budget).	X
Contour lines Properties of the contour period Factors on which the contour period depends Contour recess Determination of contour lines (direct method). Methods of setting contour lines (indirect methods), section method, checkpoint method, squares method (grid leveling).	Eleventh
Drawing contour lines (calculation method and difference division method). Regressions Calculate the volumes of tanks (tanks) Drawing sections of contour lines.	Twelfth
Circular deviations abbreviated local gravity circular deviation. Scanning (lifting) using the compass and practical exercises on how to calculate the survey with the compass.	Thirteenth
Curves Horizontal curves types (circular and gradient) Elements of a simple circular curve and drawing each type Simple circular curve design (equations) Drawing a simple circular curve.	Fourteenth
Vertical curves vertical curve design.	Fifteenth

Course Description : Construction Materials

This course description provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the student to achieve, proving whether he or she has made the most of the available learning opportunities. It must be linked to the description of the programme.

Northern Technical University / Kirkuk Technical Institute	1. Educational institution
Scientific Department of Civil Technologies / Road Construction Branch	2. University Department / Center
Construction materials (CITH120)	3. Course Name/Code
Level I – All Branches	4. Programs in which he enters

daily	5. Available Attendance Forms
Course (Semester)	6. Semester / Year
4 hours * 15 weeks = 60 hours	7. Number of Credit Hours (Total)
/ 4/ 2024	8. The history of preparation of this description
9. Course Objectives	
- Introducing the student to the properties of structural materials and methods of production.	
- Introducing the student to the modern alternatives that currently exist. - As well as introducing the student to modern methods of production.	
- Qualifying the student to carry out standard examinations to find out the conformity of construction materials to specifications.	
- As well as determining the possibility of using them in construction, which ensures strength, safety and economy. - Teaching the student with standard examinations to find out the extent to which the construction materials conform to specifications.	

10. Course Structure					
Evaluation method	Method of education	Name of the unit/course or topic	Required Learning Outcomes	Number of Hours	Number of weeks
Semester Exams	Lectures	Construction Materials	Technical Diploma	4	15 weeks
Written tests	Laboratory experiments				
Oral tests	Visit Sites				
Reports					
Field exercises					

11. Infrastructure	
Vocabulary - Textbooks - External Resources - Internet	Required readings: - Basic texts - Course Books - Other
Training courses for state departments - participation in the advisory office	Special requirements (e.g. workshops, periodicals, software and websites)
Exploratory studies for state departments - engineering consultancy	Social services (e.g. guest lectures, vocational training and field studies)

12. Acceptance	
Scientific Graduate - Average - Physical Fitness - Desire to Specialize	Prerequisites
20	Minimum number of students
30	The largest number of students

13-Learning outcomes and teaching, learning and assessment methods	
A. Knowledge and understanding A1- Identify the types of construction materials used in construction. A2- Details and types of approved standard construction specifications. A3- Implementation of all laboratory experiments for building materials. A4- Determining the types of materials suitable for construction and the necessary quantities. A5- Identify the methods of mixing building materials and dividing them according to the mixtures used in construction. A6- Identify industrial and composite building materials.	
B - Subject-specific skills B1 – Identify the standard specifications of building materials used in the implementation of buildings. B2- Quality control over the weight and volume of quantities of building materials used. B3- Supervising the conduct of field tests of building materials. B4- Calculate the quantities required for building materials in the bill of quantities. B5- Addressing errors and problems that the building is exposed to when implementing when there are bad materials	
Teaching and learning methods	
1- Lecture style. 2- Laboratory 3- Presentation of scientific films 4- Field visits. 5 - Student projects. 6 - Field training.	
Evaluation methods	
1- Oral tests 2- Semester exams (first and second semesters) 3- Laboratory reports 4- Final exams (theoretical and practical) 5- Solving applied problems.	
C- Thinking skills C1 Identify the standard specifications of building materials used in the implementation of buildings. C2- Quality control over the weight and volume of quantities of building materials used C3- - Supervising the field tests of building materials C4- Calculate the quantities required for building materials in the bill of quantities.	

C5- Addressing the errors and problems that the building is exposed to when implementing when there are bad materials.
Teaching and learning methods
1- Lecture Method 2- Laboratory 3- Presentation of scientific films 4- Field visits. 5- Civil workshops, 6- Summer training 7- Student projects, 8- Student research
Evaluation methods
1- Oral tests 2- Semester exams (first and second semesters) 3- Laboratory reports Final exams (theoretical and practical)
d. General and transferable skills (other skills related to employability and personal development). D1- Use laboratory equipment and tools well. D2- How to save structural materials from damage. D3- Speed of completion of work and well.
14- Course Development Plan: The development plan is carried out through studies submitted through the annual scientific plan for course development.

Theoretical vocabulary	Week
Vocabulary details	
A general description of the physical properties and standard specifications of building materials and their uses in buildings.	The first
Clay bricks: properties, uses and methods of manufacture.	Second
Specifications of clay bricks, tests for clay bricks	Third
Lime bricks Glass bricks, properties and methods of manufacture.	Fourth
Concrete bricks Concrete blocks (properties and method of manufacture with an explanation of the difference between the two).	V
Thermostone, its properties, and methods of manufacture.	Sixth
A visit to one of the brick factories and a center for construction materials	Seventh
Building stone classification and types, uses of building stone according to its types.	Eighth
Portland cement, its manufacture, chemical composition, types and specifications	Ninth
Concrete pipes, their industry, specifications, use for construction purposes	X
Concrete slabs, types, specifications, use for construction purposes	Eleventh
Structural steel, specifications, types, uses	Twelfth

Detailing of steel, welding, bolts, rivets, and their applications	Thirteenth
Site visit to see structural steel and its types, steel connections, rivets, welding and screws	Fourteenth
Environmentally friendly building materials	Fifteenth

Course Description: Electrical Drawing

This course description provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the student to achieve, proving whether he or she has made the most of the available learning opportunities. It must be linked to the description of the programme.

Northern Technical University / Kirkuk Technical Institute	1. Educational institution
Scientific Department of Civil Technologies / Computer Drawing Branch	2. University Department / Center
Electrical drawing (CITC 127)	3. Course Name/Code
Level One – Electrical Drawing	4. Programs in which he enters
daily	5. Available Attendance Forms
Course (Semester)	6. Semester / Year
3 hours * 15 weeks = 45 hours	7. Number of Credit Hours (Total)
/ 4 / 2024	8. The history of preparation of this description
9. Course Objectives	
- Enable the student to understand all electrical symbols.	
- Enable the student to understand all electrical diagrams.	

10. Course Structure

Evaluation method	Method of education	Name of the unit/course or topic	Required Learning Outcomes	Number of Hours	Number of weeks
Quarterly Exams	Lectures in the studio	Electrical drawing	Technical Diploma	3	15 weeks
Daily Tests	Follow-up students during manual drawing				
Drawing paintings in the studio (Safia)	Drawing relevant issues in the studio				
Drawing home paintings					
Classroom activity, continuous attendance and non-absence					

- Teach the student to draw electrical symbols.

- Teach the student how to draw diagrams for multiple electrophoresis circuits.

- Teach the student how to draw for the foundations of the electrician for Darsaknia.

11. Infrastructure	
Vocabulary - Textbooks - External Resources - Internet	Required readings: ▪ Basic texts ▪ Course Books ▪ Other
Training courses for state departments - participation in the advisory office	Special requirements (including e.g. workshops and periodicals)
Exploratory studies for state departments - engineering consultancy	Social services (e.g. guest lectures, vocational training and field studies)
12. Acceptance	
Scientific Graduate - Average - Physical Fitness	Prerequisites
20	Minimum number of students
30	The largest number of students

13. Learning outcomes and teaching, learning and assessment methods	
A. Knowledge and understanding	
A1- The student's knowledge of the types of electrical symbols.	
A2- The student's knowledge of drawing multiple electrical circuits.	
A3- The student's knowledge of drawing multiple electronic circuits.	
A4- The student's knowledge of the types of electrical installations.	
B - Subject-specific skills	
B1 – Increase students' ability to understand electrical diagrams.	
B2- Gaining speed and great ability to draw electrical diagrams of all kinds.	
B3- Learn to draw electrical installations diagrams.	
B4- Learn how to draw diagrams for multiple electrical circuits.	
Teaching and learning methods	
1- Lecture style. 2- Drawing in the studio 3- Showing scientific films 4- Field visits. 5 - Student projects.	
Evaluation methods	
1- Oral Exams 2- Semester Exams (Second Semester) 3- Daily and Home Boards 4- Final exams (theoretical and practical) 5- Solving problems related to the subject in the studio.	
C- Thinking skills	
C1- Increasing students' ability to understand electrical diagrams.	
C2- Gaining speed and great ability to draw electrical diagrams of all kinds.	
C3- Learn to draw electrical installations diagrams.	
C4- Learn how to draw diagrams for multiple electrical circuits.	
Teaching and learning methods	
1- Lecture style 2- Studio 3- Presentation of scientific films 4 - Drawing in the studio, 5- Summer training 6- Student projects, 7- Student research	
Evaluation methods	
1- Daily Exams 2- Semester Exams (Second Semester) 3- Daily and Home Boards 4. Final Exams	
d. General and transferable skills (other skills related to employability and personal development).	
D1- Preparation of electrical plans for civil engineering projects	
D2. The use of AutoCAD software in designs of electrical installations diagrams.	

14- **Course Development Plan:** The development plan is carried out through studies submitted through the annual scientific plan for course development.

Theoretical vocabulary	
Vocabulary details	Week
Electrical symbols for electronic circuits and the function of each code in the circuit	First and second
A scientific visit to the electronic circuits laboratory at the Institute	Third
Teaching the student how to draw using the calculator	Fourth
Teaching to draw many electronic circuits	V
A simplified idea of the implementation of civil electrical installations Connection methods from the source Single-phase and three-phase feeding	Sixth and seventh
Teaching drawing many electrical circuits	Eighth
An example of electrical installations for a residential house	Ninth
A scientific visit to the electrical foundations laboratory and identifying electrical connections	Tenth and eleventh
Detailing the electrical installations of a multi-storey building	Twelfth
Industrial Electrical Installations Distribution Panels Cable Diagrams	Thirteenth
Teaching Drawing a diagram showing the establishment of an electrician for a workshop or a small laboratory	Fourteenth
Example of drawing electrical connections for a small plant with illustration of heating circuits and power circuits	Fifteenth

Course Description : Engineering Mechanics

This course description provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the student to achieve, proving whether he or she has made the most of the available learning opportunities. It must be linked to the program description.

Northern Technical University / Kirkuk Technical Institute	1- Educational institution
Scientific Department of Civil Technologies/	12-University Department / Center
Engineering Mechanics CITB125	13-Course Name/Code
The first level - branch / road construction - building and construction - computer drawing	14-Programs in which he enters
daily	15-Available Attendance Forms
Course (Semester)	16-Semester / Year
6 hours * 15 weeks = 90 hours	17-Number of Credit Hours (Total)
/ 4/ 2024	18-The history of preparation of this description
19-Course Objectives	
- Teaching the student to analyze the forces and loads applied to objects	
- Introducing the student to the extraction of strong stresses and their relationship to the materials that make up these bodies	

20- Course Structure					
Evaluation method	Method of education	Name of the unit/course or topic	Required Learning Outcomes	Number of Hours	Number of weeks
Semester Exams	Lectures	Engineering Mechanics	Technical Diploma	6	15 weeks
Written tests					
Oral tests					
Reports					
21- Infrastructure					
Vocabulary - Textbooks - External Resources - Internet		Required readings: - Basic texts - Course Books - Other			
Training courses for state departments - participation in the advisory office		Special requirements (e.g. workshops, periodicals, software and websites)			
Exploratory studies for state departments - engineering consultancy		Social services (e.g. guest lectures, vocational training and field studies)			
- Analysis of installations and finding forces and stresses in their parts as a result of shedding external loads.					
- As well as the relationship of this to the dimensions of the different parts in engineering facilities to withstand the stresses imposed on them safely and economically.					

22-Acceptance	
Scientific Graduate - Average - Physical Fitness	Prerequisites
20	Minimum number of students
30	The largest number of students

23-Learning outcomes and teaching, learning and assessment methods

A. Knowledge and understanding A1. Solving vector Problems A2- Horizontal Forces Analysis A3- Finding the resultant of the forces A4. Solving Dual Problems A5- Solving moment problems A6- Analysis of the forces of gables
B - Subject-specific skills B1 – Finding frictional forces between solid bodies B2- Finding the center of gravity of objects B3- Solving equilibrium problems B4- Finding the inertial moment of objects B5- Finding the resultant of the forces
Teaching and learning methods
1- Lecture style.
Evaluation methods
5- Oral Exams 2- Semester Exams (First and Second Semesters) 3- Final exams (theoretical and practical) 4- Solving applied problems.
C- Thinking skills C1 Finding the center of gravity of objects C2- Finding the inertial moment of objects C3- Finding the result of non-converging forces C4- Solving equilibrium problems
Teaching and learning methods
1- Lecture Style 2- Student Research
Evaluation methods
1- Oral exams 2- Semester exams (first and second semesters) 3- Final exams (theoretical and practical)
d. General and transferable skills (other skills related to employability and personal development). D1-Use Calculator D2- Analysis of forces acting on objects D3. Speed and accuracy of solving problems

14- Course Development Plan: The development plan is carried out through studies submitted through the annual scientific plan for course development.

Northern Technical University
 Technical Institute / Kirkuk
 Building & Construction Department / Chapter One

Number of Units	Weekly Hours			Level	Course Code	Course Name and Language
	Mug	on	nun			
6	6	2	4	First	CITB125	Engineering Mechanics Engineering Mechanics

Objective: - Teach the student to analyze the forces and loads imposed on the bodies and extract the stresses as a result of these forces and their relationship to the materials that make up these bodies. Analysis of facilities and finding forces and stresses in their parts as a result of shedding external loads and their relationship to the dimensions of the different parts in engineering facilities to bear the stresses imposed on them safely and economically.

Theoretical vocabulary		Week
Vocabulary details		
Definition of mechanics – general preview of physics related with using the personal calculator – vector quantities and scalar quantities – triangle and parallel ogram forces low - Analysis of forces.		1-2
Moment of forces. Couples – Moment of couples, Transformation of couple.		3
Resultant Parallel and Concurrent forces.		4
Distributed forces. Equilibrium, equation of equilibrium in plane.		5-6
Types of Beams – of Supports. Trusses Analysis of Trusses by Joint method.		7
Analysis of Trusses by section method . Friction – Nature of friction – Friction angle .		8-9
Centroid of simple engineering shape- Centroid of Composite Engineering shape.		10
Moment of inertia of simple engineering shapes _ moment of inertia of composite engineering shapes.		11
Introduction on strength of materials - definition of stress and their types - factor of safety - Stress.		12
Htooks law – Relation Between Stress and strain – side strain. Poisson s ratio – stress and strain.		13
Drawing of shear force and bending moment. Shear force and bending moment.		14
Bending stress of beam. Shear stress of beams. Beams made of two different material .		15

Practical vocabulary	Week
Vocabulary details	
Definition of mechanics – general preview of physics related with using the personal calculator – vector quantities and scalar quantities – triangle and parallel ogram forces low with applications. Analysis of forces with applications.	1-2
Applications on Moment of forces. Couples – Moment of couples, Transformation of couple. Applications of	3

Applications of Resultant Parallel and Concurrent forces .	4
Applications of distributed forces. Applications of Equilibrium, applications on equation of equilibrium in plane.	5-6
Applications on Types of Beams – applications on Type of Supports. Trusses Analysis of Trusses by Joint method with applications.	7
Analysis of Trusses by section method with applications. Friction – Nature of friction – Friction angle , Application of friction lows.	8-9
Centroid of simple engineering shape Centroid of Composite Engineering shape with application.	10
Applications of moment of inertia of simple engineering shapes _ applications of moment of inertia of composite engineering shapes.	11
Introduction on strength of materials - definition of stress and their types - factor of safety with applications. Application of stress.	12
Hooke's law – Relation Between Stress and strain – side strain with application. Poisson's ratio – applications on stress and strain.	13
Application on Equation and drawing of shear force and bending moment. Application of shear force and bending moment.	14
Application on Bending stress of beam. Application of Shear stress of beams. Applications on beams made of two different material.	15

Course Description: Principles of Computer

This course description provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the student to achieve, proving whether he or she has made the most of the available learning opportunities. It must be linked to the description of the programme.

Northern Technical University / Kirkuk Technical Institute	1- Educational institution
Scientific Department of Civil Technologies	2- University Department / Center
Principles of Computer NTU102	3- Course Name/Code
The first level - construction and construction _ computer drawing _ road construction	4- Programs in which he enters
daily	5- Available Attendance Forms
Course (Semester)	6- Semester / Year
3 hours * 15 weeks = 45 hours	7- Number of Credit Hours (Total)
/4/2024	8- The history of preparation of this description
9- Course Objectives	
- Teaching the student about the calculator	
- Learn the basics of computers and their components	
- Providing the student with full knowledge of the operating system	

10- Course Structure					
Evaluation method	Method of education	Name of the unit/course or topic	Required Learning Outcomes	Number of Hours	Number of weeks
Semester Exams	Lectures	Computer Principles	Technical Diploma	3	15 weeks
Written tests	Laboratory experiments				
Oral tests	Visit Sites				
Reports					
Practical exercises					
11- Infrastructure					
Vocabulary - Textbooks - External Resources - Internet		Required readings: - Basic texts - Course Books - Other			
Training courses for state departments - participation in the advisory office		Special requirements (e.g. workshops, periodicals, software and websites)			
Exploratory studies for state departments - engineering consultancy		Social services (e.g. guest lectures, vocational training and field studies)			
Teach the student with desktop components					
- Teaching the student the concept of icons					

12- Acceptance	
Scientific Graduate - Average - Physical Fitness	Prerequisites
20	Minimum number of students
30	The largest number of students

13- Learning outcomes and teaching, learning and assessment methods

A. Knowledge and understanding

A1- The presence of the calculator leads to great benefits by performing our calculations

A2- Finite accuracy calculator

A3- Identifying generations of computers A4 - CPU recognition
B - Subject-specific skills B1 – Introducing the student to the components of the desktop B2- The student has gained experience in the field of Excel and Word B3- Recognize the My computer icon B4- The student acquires the difference between Ram and ROM memory
Teaching and learning methods
1- Lecture style. 2- Laboratory 3- Presentation of scientific films 4- Field visits. 5 - Student projects. 6 - Training in the laboratory .
Evaluation methods
1- Oral tests 2- Semester exams (first and second semesters) 3- Laboratory reports 5- Final exams (theoretical and practical) 5- Solving applied problems.
C- Thinking skills C1 – Increase the student's knowledge of opening a file C2- Introduce the student to the difference between transferring and copying C3- The ability to open the control panel in Windows 10 C4- Introducing the student on the keyboard
Teaching and learning methods
1- Lecture Method 2- Laboratory 3- Presentation of scientific films 4- Field visits. 5- Civil workshops, 6- Summer training 7- Student projects, 8- Student research
Evaluation methods
1- Oral tests 2- Semester exams (first and second semesters) 3- Laboratory reports Final exams (theoretical and practical)
d. General and transferable skills (other skills related to employability and personal development). D1- Using computer programs and applying them according to the student's specialization. D2- Access to the latest technologies in computer programs.
14- Course Development Plan: The development plan is carried out through studies submitted through the annual scientific plan for course development.

Theoretical vocabulary	Week
Vocabulary details	
Operating systems OS's : (What is an OS's and what it can do , types of OS's , their features importance) ; Windows OS's (95 , 97 , 2000 , Me , XP , Vista , 7 , 8 , 8.1 and 10) and their characteristics ; Explain the differences between OS's and software application ; Computer power On / Off ; Using Mouse and their buttons . Looking at the Desktop ; Navigation around desktop ; Using Start Button ; Working with Application ; Using Taskbar ; Understanding Software and Hardware (their differences , importance and relationships) ; Explain how hardware can influence the OS and software and Vice Versa ; Software updates, security and bugs ; Software Ethics .	First and second week
Files & Folders : Looking at typical Window ; Moving and Sizing Window ; Using scroll Bars ; Understanding and using My Computer and Recycle Bin ; Concepts of Drive, Folders and files (differences and importance) ; Directory and folder hierarchy and structure ; Understanding File Name and common Extensions . Folder And Files Managements (Create , Copy , Cut , Delete , Rename , Find , and Move) ; Common Keyboard Shortcuts ; Undelete folder and files using Recycle Bin ; Display the differences between Uninstall and Undelete or Delete .	Third week
Computer Hardware ; Identifying Computers (Main Frame ; Super Computers ; Mini computers ; Desktop ; Notebooks ; Laptop ; Tablet PCs ; Servers ; Hand-held or Mobile computers ; Music or Media players and Electronic Book readers). Looking inside a Computer (Microprocessor , System memory , Storage Systems) ; Recognizing Input / Output Devices (using Keyboard ; Pointing devices ; Microphones ; Monitor ; Printers ; Projector and Speakers) ; Understanding How it works together .	Fourth and fifth week
Using Control Panel : Customizing Desktop and Display ; Changing Data and Time ; Changing Language ; Accessibility Settings . Understanding Power Options (Shut Down , Sleep , Hibernate) ; Working With Power Settings ; Identifying Mode Of Operation (Safe Mode and Normal Mode) ; Understanding User Accounts and Rights (Create New User Account ; Changing Controls ; Rights and Access)	Week Six
What is a Software (Checking System Requirements & Hardware Implications) ; Application Software (Integrated Suites , Desktop Publishing , Spreadsheets , Database , Management , Presentations , Art , Engineering , Mathematic , Statistics , Medical , Management , Content Creation , Multimedia , Entertainment and System protection); Managing Software (Install New one, Uninstall , Reinstall and Updating Software . Disk Management Programs (Disk Clean-up , Check , Optimize and Compression); What is Troubleshooting ?; Managing Hardware / Software ; Keep Copies of data ; Dealing with Viruses , Malware and Trojans; Getting windows help and support .	Week seven
Key Applications (Office 2013 or 2010) What is Key Applications ? : What it can do? ; Getting started (Start & Power point) < Looking at the main screen (for Word , Excel , Power point) , Accessing Commands and Characteristic Features , Understanding Ribbon ; Tabs ; Status Bar ; Scroll Bar ; Create files from templates , How to get Help , Manipulating Files and Data Exchange Microsoft Word: Entering and Editing Text (using editing keys) , Writing in Arabic and English ,Changing Orientation , Using Ruler , Move Around the Document	Week eight and nine

Selecting Text (word , line , paragraph , pages & all pages) Save ; Close ; Open Document , Customizing View ,Edit Text Using (redo, undo, cut, copy & paste), Formatting text using font command ,Paint Brush and Alignment Types Spell Check and Correction	
Understanding Tab setting , Working with Indents , Organizing List , Working with Paragraphs , Change Line Space , Set Paragraph Space , Working with Styles &Using Quick Styles , Finding and Replacing items, Document Formatting , Page Background and Watermark , Learn how write Arabic in English direction and write English word in Arabic direction	Week Ten and Eleven
Page setup (change paper size , orientation , margins) ,Insert Page breaks ,Adding Page number or titles , Applying Columns and how to use it , Preview and Print document , Using Multimedia files (Insert images, objects) and manipulating them , Using Tables (create new one , insert excel table , selecting items in the table) and Formatting Tables	Twelfth week
Understanding PowerPoint & Presentation ; What dose a presentation Include ; Working with presentations (Creating ; saving ; Closing ; Opening presentations); Moving around in the presentation ; Managing the Slides (Inserting ; Deleting ; Rearranging Slides , Changing Layout Changing or modifying themes	Thirteenth and fourteenth week
Managing Slide Objects (Using Select Versus Edit Mode ; Manipulating Text Create Tables & Charts ; Inserting Pictures or Clip art or Multimedia); Creating Master Slide ; Animating Objects (Customizing the animation , Applying Slide Transitions) ; Running the Slide Show and set up the Presentation; Previewing and Printing Presentation	Fifteenth week

Academic Description of Level II Courses

Course Description : Road Construction

This course description provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the student to achieve, proving whether he or she has made the most of the available learning opportunities. It must be linked to the description of the programme.

Northern Technical University / Kirkuk Technical Institute	1- Educational institution
Scientific Department of Civil Technologies / Road Construction Branch	2- University Department / Center
Road construction (CITH127)	3- Course Name/Code
Level II – Road Construction	4- Programs in which he enters
daily	5- Available Attendance Forms
Course (Semester)	6- Semester / Year
3 hours * 15 weeks = 45 hours	7- Number of Credit Hours (Total)
/ 4 / 2024	8- The history of preparation of this description
9- Course Objectives	
- Teaching the student what he needs from the theoretical and practical foundations for designing methods and analyzing his information.	
- Providing the student with the necessary skill to carry out road construction works.	
- As well as providing him with	

10- Course Structure					
Evaluation method	Method of education	Name of the unit/course or topic	Required Learning Outcomes	Number of Hours	Number of weeks
Semester Exams	Lectures	Road construction	Technical Diploma	3	15 weeks
Written tests	Laboratory experiments				
Oral tests	Visit Sites				
Reports					
Field exercises					
the necessary information about the details of the road and furnishing it in terms of traffic signs and traffic programming.					
- Teach the student how to control and drain surface and subsurface water from the road.					
- Providing the student with the skill of determining the size of road problems and how to treat them.					
- Teaching the student periodic maintenance and permanent maintenance.					

11- Infrastructure	
Vocabulary - Textbooks - External Resources - Internet	Required readings: ▪ Basic texts ▪ Course Books ▪ Other
Training courses for state departments - participation in the advisory office	Special requirements (e.g. workshops, periodicals, software and websites)
Exploratory studies for state departments - engineering consultancy	Social services (e.g. guest lectures, vocational training and field studies)

12- Acceptance	
Scientific Graduate - Average - Physical Fitness	Prerequisites
20	Minimum number of students
30	The largest number of students

13- Learning outcomes and teaching, learning and assessment methods

A. Knowledge and understanding A1- Road Design A2- Details and types of roads A3- Implementation of flexible and rigid road paragraphs A4- Identify road problems and how to treat them A5- Surface and subsurface water drainage A6- Road Maintenance
B - Subject-specific skills B1 – Application of the cumulative curve of quantities. B2- Quality control of the components of the road layers B3- Supervising the implementation of road works B4- Design of asphalt mixtures B5- Addressing paving problems
Teaching and learning methods
1- Lecture style. 2- Laboratory 3- Presentation of scientific films 4- Field visits. 5 - Student projects. 6 - Field training.
Evaluation methods
14- Oral tests 2- Semester exams (first and second semesters) 3- Laboratory reports 5- Final exams (theoretical and practical) 5- Solving applied problems.
C- Thinking skills C1- Application of the cumulative curve of quantities. C2- Quality control of the components of the road layers C3- Supervising the implementation of road works C4- Asphalt mixtures design C5- Treatment of paving problems
Teaching and learning methods
1- Lecture Method 2- Laboratory 3- Presentation of scientific films 4- Field visits. 5- Civil workshops, 6- Summer training 7- Student projects, 8- Student research
Evaluation methods
1- Oral tests 2- Semester exams (first and second semesters) 3- Laboratory reports Final exams (theoretical and practical)
d. General and transferable skills (other skills related to employability and personal development). D1-Use Calculator D2-Tightening of wooden moldings D3-Mechanics Workshops

14. Course Development: The development plan is carried out through studies submitted

through the annual scientific plan for course development.

Theoretical vocabulary	Week
Vocabulary details	
Introducing the student to the laboratory devices, equipment and supplies of the general laboratory and the field laboratory Steps for preparing materials to make a mixing equation (coarse, medium, fine aggregate and water)	The first
Standard method for examining the mechanical analysis of aggregates and calculating the total and apparent specific weight of aggregates and fillers (tests for fillers, gradation and weighing factor)	Second
Marshall's method for designing an asphalt mixture for the stabilizer layer	Third
Marshall method for designing asphalt mixture for the base layer and Marshall method for designing asphalt mixture for the surface layer	Fourth
Field visit to municipal asphalt plants	V
Examination of Marshall stability samples for the above layers, comparison of stability and creep values, percentage of air voids and filled with asphalt, calculation of the percentage of crushed aggregate for each layer of the above layers, comparing the results of the tests above	Sixth
Field visit to one of the above road projects	Seventh
Examination of the quantitative extraction of an asphalt model from a work site for a project and comparing the results from the specifications Calculations and results of quantitative extraction examination and comparison of results with specifications with determination of the percentage of tar and gradient of aggregates and calculation of the percentage of cracking	Eighth
Standard method of modeling asphalt tiling mixtures Standard method for taking field samples and conducting examination	Ninth
Method for checking the maximum specific weight of asphalt mixtures and pulp models	X
Standard method for checking stacking (hadal) for tiling	Eleventh
A scientific visit to the laboratory of testing construction materials (roads laboratory)	Twelfth
Showing a scientific film or a scientific visit to the project of paving and paving the road and pouring and clarifying the methods of placing joints and reinforcement	Thirteenth
Failures in flexible paving, assessment of the level of failure in an external road using special forms	Fourteenth
The correct scientific methods in measuring failures for tiling and preparing a report explaining the methods of road maintenance after	Fifteenth

Course Description : Quantitative Survey

This course description provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the student to achieve, proving whether he or she has made the most of the available learning opportunities. It must be linked to the program description.

Northern Technical University / Kirkuk Technical Institute	1- Educational institution
Scientific Department of Civil Technologies/	2- University Department / Center
Quantity survey CITB229	3- Course Name/Code
The second level - branch / road construction - building and construction - computer drawing	4- Programs in which he enters
daily	5- Available Attendance Forms
Course (Semester)	6- Semester / Year
6 hours * 15 weeks = 90 hours	7- Number of Credit Hours (Total)
/ 4/ 2024	8- The history of preparation of this description
9- Course Objectives	
- Teaching the student to calculate the quantities, costs and arms for different works.	
- Introducing the student to how to calculate the paragraphs involved in the implementation of buildings and shields for various works.	

10- Course Structure					
Evaluation method	Method of education	Name of the unit/course or topic	Required Learning Outcomes	Number of Hours	Number of weeks
Semester Exams	Lectures	Quantity Survey	Technical Diploma	6	15 weeks
Written tests	Visit Sites				
Oral tests					
Reports					
Field exercises					
11- Infrastructure					
Vocabulary - Textbooks - External Resources - Internet		Required readings: - Basic texts - Course Books - Other			
Training courses for state departments - participation in the advisory office		Special requirements (e.g. workshops, periodicals, software and websites)			
Exploratory studies for state departments - engineering consultancy		Social services (e.g. guest lectures, vocational training and field studies)			
- Calculating the materials included in these paragraphs with the principles of calculating its cost.					
- As well as contracting and its types and project management.					

12- Acceptance	
Scientific Graduate - Average - Physical Fitness	Prerequisites
20	Minimum number of students
30	The largest number of students

13- Learning outcomes and teaching, learning and assessment methods

A. Knowledge and understanding A1- Calculation of the amount of materials involved in the construction of one standard unit A2- Preparation of bills of quantities for speculative detection A3- Calculating the cost of paragraphs in the speculative disclosure A4- Calculation of the quantity of rebar in the facilities A5- Calculating the amount of earthworks in the roads A6- Calculation of the duration of the project completion
B - Subject-specific skills B1 – Preparing the speculative disclosure of projects. B2- Calculation of the amount of potholes and backfilling in road works B3- Knowing the orders of the first and second sections in the implementation of projects B4- Preparation of contractors' advances B5- Calculation of the shortest period for the completion of projects
Teaching and learning methods
1- Lecture Method 2 - Field visits. 3 - Student projects. 4 - Field training.
Evaluation methods
6- Oral Exams 2- Semester Exams (First and Second Semesters) 3- Final exams (theoretical and practical) 4- Solving applied problems.
C- Thinking skills C 1 - Preparation of speculative disclosure of projects. C2- Calculating the amount of excavation and backfilling in road works C3- Knowing the orders of the first and second sections in the implementation of projects C4- Preparation of contractors' advances C5- Calculation of the shortest period for the completion of projects
Teaching and learning methods
1- Lecture Method 2 - Field Visits , 3 - Summer Training 4 - Student Projects , 5 - Student Research
Evaluation methods
1- Oral exams 2- Semester exams (first and second semesters) 3- Final exams (theoretical and practical)
d. General and transferable skills (other skills related to employability and personal development). D1-Use Calculator D2- Preparation of estimative statements D3- Speed and accuracy of work

14- **Course Development Plan:** The development plan is carried out through studies submitted through the annual scientific plan for course development.

Theoretical vocabulary	Week
Vocabulary details	
Definitions of guessing, its purpose, the foundations on which the guess is based and the expected benefits of the estimation process. Types of estimation, units of measurement used for all construction paragraphs, table of quantities. Calculating the amount of earthworks for the foundations of the establishments (buildings) (various types of foundations) and explaining their schedule of quantities	The first

with the mention of the unified standard guide for these works, their specifications and price analysis.	
Calculate the amount of structural paragraphs under moisture barrier (square, foundation concrete, cubing) with mentioning the unified standard guide for these works, their specifications and their schedule of quantities. Calculating the amount of structural paragraphs above the moisture barrier (padlo), including moisture barrier concrete, building above the moisture barrier (bricks and concrete blocks) and mentioning the unified standard guide for its arm, specifications and its schedule of quantities.	Second
Calculation of the amount of concrete, rebar, wooden mold for foundations (structural buildings with foundations of walls with the foundations of piles and mention the unified standard guide for their arms and specifications Calculation of the quantity of concrete, rebar, wooden mold, connecting bridges in structural buildings below the level of padlo and bridges over openings, price analysis and mention of the unified standard guide for the pretext of these works.	Third and the fourth
Calculation of the quantity of concrete, rebar, wooden mold for columns of all kinds with the analysis of their prices and the mention of the unified standard guide and specifications. Calculation of the amount of concrete, rebar, wood mold for various concrete works and special shapes such as domes and arches.	V and the sixth
Calculation of the quantity of concrete, rebar, wooden mold for unidirectional and bidirectional slabs with price analysis and mention of the unified standard guide for their specifications and bill of quantities. Calculating the quantity of concrete, wooden mold, rebar for stairs of all kinds, price analysis and mentioning the unified standard guide for their arms and specifications	Seventh and eighth
Calculating the quantity of secondary ceiling works of all kinds, and flattening works for all its paragraphs (Gear, Badlo, Steiker) and mentioning the unified standard guide for its arms and specifications. Calculating the quantity of finishing works (ficus, whiteness, prose and dye) and furfurous cashiers, price analysis, and mentioning the unified standard guide for their arms, specifications and bill of quantities.	Ninth and the tenth
Calculation of the quantity of flooring, cashier, kashi and packaging of facades with alabaster and halan and mentioning the unified standard guide and its specifications and schedule of quantities Calculating the quantity of electrical and mechanical installations works and mentioning the unified standard guide for their arms, specifications and schedule of quantities.	Eleventh and twelfth
Calculating the quantity of water and sanitary installations works and analyzing and mentioning the unified standard guide for their arms, specifications and bill of quantities. Calculating the amount of construction works for prefabricated construction (walls and roofs) and explaining their specifications, the bill of quantities and the unified standard guide for that.	Thirteenth
Calculating the quantity of works and some paragraphs of steel structures and analyzing their prices, arms and bill of quantities Contracts, contracting and contract organization, application letters, tender form and instructions for contractors, maintenance period and advances and how to calculate them	Fourteenth

Definitions of management, relations between individuals, organization, responsibilities of cadres, organization in projects, site plan, control and engineering management of projects. Project scheduling: work progress schedule, arrow grid charts, critical path Some applications for calculating the quantities of structural paragraphs using the computer.	Fifteenth
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Course Description : Concrete Technology

This course description provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the student to achieve, proving whether he or she has made the most of the available learning opportunities. It must be linked to the description of the programme.

Northern Technical University / Kirkuk Technical Institute	1- Educational institution
Civil Technology / Building and Construction Branch / Road Construction Branch	2- University Department / Center
Concrete Technology (CITB224)	3- Course Name/Code
Second level (construction and roads branches)	4- Programs in which he enters
Daily Attendance	5- Available Attendance Forms
Course / first semester and second semester	6- Semester / Year
4 hours * 15 weeks (per semester) = 60 hours per semester	7- Number of Credit Hours (Total)
/ 4 / 2024	8- The history of preparation of this description
9- Course Objectives	
- The course aims to graduate qualified technical staff to design concrete mixtures for all construction sites	

- The use of modern methods in casting work.
- Quality control of concrete components.
- Familiarity with the production of all types of concrete.

10- Learning outcomes and teaching, learning and assessment methods
A. Knowledge and understanding A1- Types of concrete A2- Experiments conducted on the types of concrete A3- Concrete Applications A4- Design of concrete mixes for different sites A5- Quality control of concrete components
B - Subject-specific skills B1 – Supervising the implementation of the paragraph of pouring concrete in projects. B2 – Application of engineering specifications on concrete. B3 – Design of concrete mixtures. B4- Conducting experiments on concrete
Teaching and learning methods
1- Lecture style. 2- Lab. 3- Student Projects 4 - field training.
Evaluation methods
1- Oral tests 2- Semester exams (first and second semesters) 3- Laboratory reports 4- Final exams (theoretical and practical). 5- Written tests
C- Thinking skills C1- Follow-up of concrete pouring works. C2- Engineering tests on concrete. C3- Design of concrete mixes C4- Tests of concrete components
Teaching and learning methods
Lecture Method, Laboratory, Civil Workshops, Summer Training, Student Projects, Student Research
Evaluation methods
1- Oral tests 2 - Semester exams (first and second semesters) 3 - Laboratory reports 4 - Final exams (theoretical and practical). 5- Written tests 6- Laboratory evaluation

d. General and transferable skills (other skills related to employability and personal development).

D1-Use Calculator

D2-Tightening of wooden moldings

D3-Blacksmithing

D4- Use of laboratory equipment

11- Course Structure					
Evaluation method	Method of education	Name of the unit/course or topic	Required Learning Outcomes	Hours	Number of weeks
Semester Exams	Lectures	Concrete	Technical Diploma	4	15 weeks first semester
Written tests	Laboratory experiments				
Oral tests	Visit Sites				
Reports	Scientific films				
Field exercises					

12- Infrastructure	
Vocabulary - methodological books - external sources - Internet.	Required readings: - Basic texts - Course Books - Other
Training courses for state departments - participation in the cooperation mechanism committee - participation in the advisory office.	Special requirements (e.g. workshops, periodicals, software and websites)
Exploratory studies for state departments - engineering consultancy	Social services (e.g. guest lectures, vocational training and field studies)

13- Acceptance	
Graduate of preparatory school / scientific, industrial - average - physical fitness	Prerequisites
20	Minimum number of students
30	The largest number of students

14- **Course Development Plan:** The development plan is carried out through studies submitted through the annual scientific plan for course development.

Theoretical vocabulary	Week
Vocabulary details	
General principles about concrete (definition, composition, terminology, properties).	The first
Portland cement, its industry, chemical composition, main and secondary compounds of cement.	Second
Properties of cement: softness, weight loss by combustion, cement stability, hydration temperature, initial and final cohesion time, compressive durability, tensile strength.	Third
Types of cement (Portland cement and its types, natural cement, expansion cement, alumina cement) and the properties and uses of each type. Concrete aggregates, their sources, types (ordinary aggregates and light aggregates), classification according to grain size, classification according to water content. Harmful substances contained in aggregates with permissible limits according to specifications.	Fourth V
Aggregate tests: modeling methods, moisture content, specific weight, compact and non-stacked unit weight, gradient, porosity, absorbability, abrasion, surface particle shape, sand inflation). Water, properties of water used in concrete, aggregate washing water, maturation water	Sixth and seventh Eighth
Concrete mixing (mechanical mixing, manual mixing, types of mixers), concrete transportation, formwork and concrete compaction (types of hazards). Methods of pouring concrete under water. Properties of soft concrete: workability, texture and study of factors affecting workability. Strength and workability tests of soft concrete: fluidity test, penetration test, precipitation test, compaction agent test, reshaping and frequency vibration remodeling,	Ninth X and eleventh
Properties of soft concrete: hemorrhage, separation, plastic shrinkage	Twelfth

and soft concrete unit weight.	
The effect of air vacuums and methods of measurement, calculation of unit weight, output, cement factor in soft concrete. Equation of absolute volumes to calculate the quantities of materials involved in the production of concrete.	Thirteenth
Concrete maturation, pouring in hot and cold climate	Fourteenth
Pumping concrete, properties of concrete in pumping, devices used in pumping. Ready-mixed concrete definition, benefits and production methods, mixer trucks and shaker trucks.	Fifteenth

Course Description : Architectural Drawing

This course description provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the student to achieve, proving whether he or she has made the most of the available learning opportunities. It must be linked to the description of the programme.

Northern Technical University / Technical Institute / Kirkuk	1- Educational institution
Civil Technologies / Computer Painting Branch	2- University Department / Center

Architectural drawing (CITC221)	3- Course Name/Code
Second level / Computer Drawing Branch	4- Programs in which he enters
Daily according to the weekly lesson schedule	5- Available Attendance Forms
Second Level / First Semester and Second Semester	6- Semester / Year
7 hours * 15 weeks = 105 hours per semester	7- Number of Credit Hours (Total)
/ 4 / 2024	8- The history of preparation of this description
9- Course Objectives	
- Teaching the student to prepare integrated architectural plans and introduce him to architectural symbols	
- Identify the maps of horizontal plans, sections, facades and all architectural details related to the construction of the building.	
- Enable the student to draw and read architectural plans	
- Drawing the building in three dimensions and in multiple ways	
- Enable the student to harmonize and harmonize colors and materials to cladding facilities.	

10 - Learning outcomes and teaching, learning and assessment methods

A. Knowledge and understanding

- 1- Preparation of integrated architectural plans
- 2- Architectural symbols
- 3- Read charts

B - Subject-specific skills

- 1- Identify the maps of the horizontal plans, sections, facades and all architectural details related to the construction of the building
- 2- Drawing the building in three dimensions and in multiple ways.

Teaching and learning methods

- 1- Lecture style.
- 2- Student Research
- 3- Ceremony.
- 4- Showing scientific films
- 14- Calculator Lab.
- 6- Field visits

Evaluation methods

- 1- Oral tests.
- 2- Semester Exams (First and Second Semesters)
- 3- Daily Evaluation (Paintings)
- 4- Final Exams
- 5- Written tests.

C- Thinking skills

- C1- Drawing all types of architectural maps.
- C2- Using AutoCAD in drawing some architectural maps.
- C3- Using the Internet.

Teaching and learning methods

Lecture Style , Studio , Computer Lab , Workshops

Evaluation methods

- 1- Oral tests
- 2- Semester Exams (First and Second Semesters)
- 3- Daily Evaluation (Paintings)
- 4- Written tests
- 5- Final exams.

d. General and transferable skills (other skills related to employability and personal development).

- D1- The use of computer programs in drawing
- D2 - Design of building facades
- D3- Design of horizontal plans for buildings
- D4- The skill of making home furniture

11. Course Structure					
Evaluation method	Method of education	Name of the unit/course or topic	Required Learning Outcomes	Hours	The week
Semester Exams	Using AutoCAD	Architectural drawing	Technical Diploma	7	15 weeks for the first semester
Written tests	Mapping				
Oral tests	Film Screening				
Drawing boards	Internet				
	Student Projects				

12. Infrastructure	
1) Shadow and perspective / Emad Muhammad Azhar. 2) Introduction to interior design / Engineer Motasem Azmi Al-Karabli 3) Building Construction / Zuhair Sako , 4) Building construction on / D . Sharma – 5) Textbooks - 6) External sources – Internet.	Required readings: ▪ Basic texts ▪ Course Books ▪ Other
Training courses for state departments - participation in the advisory office	Special requirements (e.g. workshops, periodicals, software and websites)
Exploratory studies for state departments - engineering consultancy	Social services (e.g. guest lectures, vocational training and field studies)

13 -Acceptance

Graduate of preparatory school / scientific, industrial - average - physical fitness	Prerequisites
20	Minimum number of students
30	The largest number of students

- 14- **Course Development Plan:** The development plan is carried out through studies submitted through the annual scientific plan for course development.

Theoretical vocabulary / architectural drawing	Week
Vocabulary details	
1- Explain to draw the types of the arches in elevations. 2- Explain to draw the types of the pattern ornamentation of the bricks and stones.	1 , 2
Explain to draw the site plan of the residential buildings with scale (1:500) and illustrate the surrounding streets , farmed area and parking.	3 , 4
Explain to draw the elevation for the residential house, scale (1:100).	5
Explain to draw the elevation for the residential house, scale (1:50).	6
Explain to draw the elevation for the multi – story building, scale(1:100),(1:50).	7
Explain to draw the section for the residential house, scale (1:100),(1:50) and explain to draw the section for the multi – story building , scale (1:100) , (1:50).	8 , 9 , 10
1-Explain the Principles of the exterior perspective drawing (one, two and three vanishing points). 2- Explain the exterior perspective at the eye sight level, under the eye sight level and above the eye sight level.	11
Explain to draw the exterior perspective of the residential house at the eye sight level (from two vanishing points) and explain to draw the exterior perspective of the multi – story building at the eye sight level.	12 , 13
Explain the principles of the interior perspective and Explain to draw the interior perspective for one of the interior spaces in the residential house with furniture.	14 , 15

Theoretical vocabulary / Advanced Architectural Drawing	Week
Vocabulary details	
The principles of the architectural drawing (Elevations, Plans, Sections, Perspective, Details and the architectural symbols).	1,2
Explain to draw the plan of the residential house (ground and first floor plan), scale (1:100).	3
Explain to draw the plan of the residential house (ground and first floor plan), Scale (1:50).	4
1- Explain to draw the ground floor plan for the multi – story building, scale (1:100). 2- Explain to draw the other plans for the multi – story building, scale (1:100).	5
1- Explain to draw the typical floor plan for the residential building consisting of four flats , Scale (1:100).	6
2- Explain to draw the plan for the residential flat , scale (1:50).	7
1- Explain to draw the plans of the residential building illustrate the number of the doors and windows, scale (1:100). 2- Explain to draw the elevations of the doors and windows of the above plans , scale (1:50).	8
1- Explain to draw the foundation plan of the residential house with dimensions, scale (1:50). 2- Explain to draw the foundation plan of the residential house with dimensions, scale (1:100).	9
Explain to draw the sections for bearing walls and partitions illustrate the foundation and its relation with floor, roof and parapet, scale (1:20).	10
Explain to draw the details of the layers of floors with symbols of different structural materials, scale (1:10), (1:20).	11
Explain to draw the details of the layers of roofs with symbols of different structural materials, scale (1:10), (1:20).	12
1- Explain to draw the types of stairs in plans, sections and elevations, scale (1:20), (1:50). 2- Explain to draw the detail of the stair , handrail and landing.	13
Explain to draw the brick bond in walls (English and Flemish bond) in plans , elevations and isometric scale (1:20).	14
1- Explain to draw the types of the stone walls and principles of composition in elevations. 2- Explain to draw the detail of Alikopon and principles of composition in elevations	15

Course Description :Structural Drawing

This course description provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the student to achieve, proving whether he or she has made the most of the available learning opportunities. It must be linked to the description of the programme.

Northern Technical University / Kirkuk Technical Institute	1- Educational institution
Scientific Department of Civil Technologies / Building and Construction Branch	2- University Department / Center
Structural Drawing(CITB231)	3- Course Name/Code
Level II – Building & Construction	4- Programs in which he enters
daily	5- Available Attendance Forms
Course (Semester)	6- Semester / Year
6 hours * 15 weeks = 90 hours	7- Number of Credit Hours (Total)
/ 4 / 2024	8- The history of preparation of this description
9- Course Objectives	
enable the student to understand all structural plans.	
the possibility of drawing structural plans for stairs of different types.	
teach the student to read the plans and determine the extent to which they match the reality of work.	

10- Course Structure

Evaluation method	Method of education	Name of the unit/course or topic	Required Learning Outcomes	Number of Hours	Number of weeks
Quarterly Exams	Lectures in the studio	Construction	Technical Diploma	6	15 weeks
Daily Tests	Follow-up students during manual drawing				
Drawing paintings in the studio (Safia)	Discussions with students during the drawing				
Drawing home paintings	Drawing relevant issues in the studio				
Classroom activity, continuous attendance and non-absence					

- Introducing the student to the concepts of health drawing
- Teaching the student how to read and draw the drawings of steel sections.
- Teaching the student how to connect steel sections.
- The student knows the structural details of structural steel structures. Introducing the student to the structural joints.

11- Infrastructure									
Vocabulary - Textbooks - External Resources - Internet	Required readings: ▪ Basic texts ▪ Course Books ▪ Other								
Training courses for state departments - participation in the advisory office	Special requirements (e.g. workshops, periodicals, software and websites)								
Exploratory studies for state departments - engineering consultancy	Social services (e.g. guest lectures, vocational training and field studies)								
<table border="1"> <tr> <td colspan="2">12- To accept</td></tr> <tr> <td>Scientific Graduate - Average - Physical Fitness</td><td>Prerequisites</td></tr> <tr> <td>20</td><td>Minimum number of students</td></tr> <tr> <td>30</td><td>The largest number of students</td></tr> </table>		12- To accept		Scientific Graduate - Average - Physical Fitness	Prerequisites	20	Minimum number of students	30	The largest number of students
12- To accept									
Scientific Graduate - Average - Physical Fitness	Prerequisites								
20	Minimum number of students								
30	The largest number of students								

13- Learning outcomes and teaching, learning and assessment methods

A- Knowledge and understanding make students able to:

A1- Increasing students' ability to imagine all structural elements

A2- Details and types of construction plans for stairs

A3- The student's knowledge of structural steel and the extent of its use in the construction of buildings

A4- Basic and composite sections in structural steel

A5- The student's knowledge of the types of structural steel bonding

A6- The student's knowledge of the requirements of water distribution pipeline networks

A7- Requirements for living foundations in buildings

A8- The student's knowledge of sewage networks in buildings

A9- The student's knowledge of the stages of water treatment.

A10- The student's knowledge of the main types of structural joints.

B - Subject-specific skills

B1 – Increase the ability of students to imagine all structural elements.

B2- Gaining speed and great ability to draw charts of all kinds

B3- Learn to draw horizontal plans, vertical sections, cross sections and their details to show the hidden parts and fine details

B4- Detecting any error or deficiency in the construction plans

B5- Mapping residential homes and extending water in addition to installing sanitary furniture

B6- Teach the student how to draw a plan for sewage networks for residential homes

Teaching and learning methods

1- Lecture style. 2- Drawing in the studio 3- Showing scientific films 4- Field visits. 5 - Student projects.

Evaluation methods

15- Daily Exams 2- Semester Exams (First and Second Semesters) 3- Daily Boards
15- Final exams 5- Solving applied problems.

C- Thinking skills

C1 - Increase the ability of students to imagine all structural elements.

C2- Gaining speed and great ability to draw charts of all kinds

C3- Learn to draw horizontal plans, vertical sections, cross sections and their details to show the hidden parts and fine details

C4- Detecting any error or deficiency in the construction plans

C5- Mapping residential homes and extending water in addition to installing sanitary furniture

C6- Teach the student how to draw a plan for sewage networks for residential homes

Teaching and learning methods

1- Lecture style 2- Studio 3- Presentation of scientific films 4- Field visits.
, 5- Summer Training 6- Student Projects, 7- Student Research

Evaluation methods
1- Daily tests 2- Semester exams (first and second semesters) 3- Home classroom boards Final exams (theoretical and practical)
d. General and transferable skills (other skills related to employability and personal development). D1 Reading engineering diagrams D2- The ability to implement construction plans according to the needs of the work site.

- 14- **Course Development Plan:** The development plan is carried out through studies submitted through the annual scientific plan for course development.

Theoretical vocabulary	Week
Vocabulary details	
The principles of the architectural drawing (Elevations, Plans, Sections, Perspective, Details and the architectural symbols).	1,2
Explain to draw the plan of the residential house (ground and first floor plan), scale (1:100).	3
Explain to draw the plan of the residential house (ground and first floor plan), Scale (1:50).	4
1- Explain to draw the ground floor plan for the multi – story building, scale (1:100). 2- Explain to draw the other plans for the multi – story building, scale (1:100).	5
1- Explain to draw the typical floor plan for the residential building consisting of four flats , Scale (1:100).	6
2- Explain to draw the plan for the residential flat , scale (1:50).	7
1- Explain to draw the plans of the residential building illustrate the number of the doors and windows, scale (1:100). 2- Explain to draw the elevations of the doors and windows of the above plans , scale (1:50).	8
1- Explain to draw the foundation plan of the residential house with dimensions, scale (1:50). 2- Explain to draw the foundation plan of the residential house with dimensions, scale (1:100).	9
Explain to draw the sections for bearing walls and partitions illustrate the foundation and its relation with floor, roof and parapet, scale (1:20).	10
Explain to draw the details of the layers of floors with symbols of	

different structural materials, scale (1:10), (1:20).	11
Explain to draw the details of the layers of roofs with symbols of different structural materials, scale (1:10), (1:20).	12
1- Explain to draw the types of stairs in plans, sections and elevations, scale (1:20), (1:50). 2- Explain to draw the detail of the stair , handrail and landing.	13
Explain to draw the brick bond in walls (English and Flemish bond) in plans , elevations and isometric scale (1:20).	14
1- Explain to draw the types of the stone walls and principles of composition in elevations. 2- Explain to draw the detail of Alikopon and principles of composition in elevations	15

Course Description : Architectural Demonstration

This course description provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the student to achieve, proving whether he or she has made the most of the available learning opportunities. It must be linked to the description of the programme.

Northern Technical University / Kirkuk Technical Institute	1. Educational institution
Scientific Department of Civil Technologies / Computer Drawing Branch	2. University Department / Center
Architectural Showcase (CITC215)	3. Course Name/Code
Level II – Computer Drawing	4. Programs in which he enters
Daily attendance according to the weekly schedule	5. Available Attendance Forms
Course (Semester)	6. Semester / Year
6 hours * 15 weeks = 90 hours	7. Number of Credit Hours (Total)
/ April / 2024	8. The history of preparation of this description
9. Course Objectives	
Teaching the student the methods of presenting engineering projects and the main methods of showing them.	
Providing the student with the necessary skill to implement architectural models.	
As well as providing him with the necessary information about the details of mixing colors, color concepts and their connotations.	
Teaching the student how to prepare the site with different slopes.	
Providing the student with the skill of forming geometric models at different scales.	

10. Course Structure					
Evaluation method	Method of education	Name of the unit/course or topic	Required Learning Outcomes	Number of Hours	Number of weeks
Semester Exams	Lectures	Architectural Demonstration	Technical Diploma	6	15 weeks
Practical tests	Practicality				
Making architectural models	Scientific visit				
Submission of engineering panels	Scientific films				
	View architectural models				
11. Infrastructure					
Vocabulary - Textbooks - External Resources - Internet		Required readings: - Basic texts - Course Books - Other			
Training courses for state departments - participation in the advisory office		Special requirements (e.g. workshops, periodicals, software and websites)			
- Exploratory studies for state departments		Social services (e.g. guest lectures, vocational training and field studies)			
Teaching the student how to prepare the general plan for any engineering project. .					

12.Acceptance	
Scientific graduate - average - physical fitness - desire to specialize.	Prerequisites
20	Minimum number of students
30	The largest number of students

13. Learning outcomes and teaching, learning and assessment methods

A. Knowledge and understanding

- A1- Numbers of architectural models.
- A2- Details and methods of architectural backing.
- A3- Identify the connotations of colors, the locations of use of each type.
- A4- Mixing the basic colors and the resulting secondary and tertiary colors.
- A5- Preparing plans for the general site and placing shadow and shadows on it.
- A6- Identify supplements to architectural shows (people, cars, animals, trees, clouds)

B - Subject-specific skills

- B1 – Practical application of models of different scales.
- B2- Using the necessary materials and tools in preparing the form.
- B3- Making paintings with different decorations.
- B4- Preparing architectural perspective panels for buildings of different sizes.
- B5- Students' participation in developing their abilities.

Teaching and learning methods

- 1- Lecture style. 2- Attendance at the architectural models workshop 3- Presentation of scientific films 4- Field visits. 5 - Student projects. 6 - Practical training.

Evaluation methods

- 16- Oral tests 2- Semester exams (first and second semesters) 3- Laboratory reports
- 16- Final exams (theoretical and practical) 5- Solving applied problems.

C- Thinking skills

- C1- Developing the student's imagination.
- C2 Stimulate the mind to monitor the perspective for the purpose of producing it in an acceptable manner.
- C3- Applying architectural plans in the form of an architectural model on a miniature scale.
- A4- Output the models according to the design set.
- C5- Determining the dimensions of the origin and then dropping it on the engineering board with its output in an acceptable technical manner.

Teaching and learning methods

- 1- Lecture style. 2- Architectural models workshop. 3- Showing scientific films. 4- Field visits. 5- Making models. 6- Summer Training 7- Student projects.

Evaluation methods

- 1- Oral tests 2- Monthly exams 3- Final semester exam 4- Laboratory reports.

d. General and transferable skills (other skills related to employability and personal development).

- D1- Use of cut, cut, paste, measurement and drawing tools.

D2- Installation of the necessary materials in the numbers of the architectural model.

D3- The use of colors of all kinds in the output of architectural paintings and models.

14- Course Development Plan: The development plan is carried out through studies submitted through the annual scientific plan for course development.

Theoretical vocabulary	Week
Vocabulary details	
1 - Methods of submitting architectural engineering projects to the concerned authorities and the main methods of demonstration of them. 2 - Identify the materials used by showing. 3 - Explanation of colors (cold colors, warm colors, etc...).	The first
1 - Different applications on color mixing. Compatibility, contrast using a disk of colors and color concepts. 2 - Texture uses in the work of color gradations using pencils	Second
A- Making architectural models, an integrated explanation of the machines and devices used in architectural models. B- Making a stereoscopic geometric unit from the cartoon and repeating it in a stereoscopic composition to find an architectural formation aimed at understanding the consistency of the masses in the third dimension.	quarter past third
1 - Explanation of drawing trees, horizontal projections, facades, how to use them in horizontal plans. 2 - People and the method of drawing at different scales to identify the human scale of blocks in drawing façade plans.	V
Parking lots, means of transportation (how to draw them in horizontal plans).	Sixth
Explain how to draw a horizontal plan for a residential house with furnishing at a scale of 1/50 using inking pens and showing it using wooden colors.	Seventh
Shadow and shadows in the horizontal projection and facades. Explain how to draw a façade of a residential house with shade and shadows at a scale of 1:50 and show it using wooden colors with trees, people and other supplements.	Eighth
Explain the site plan for a group of buildings at an appropriate scale with shade and shadows and clarify the surrounding streets and green areas.	Ninth
Collage, types, uses with the work of a model of geometric or floral motifs and in multiple colors. Explanation of the collage in making a horizontal plan for a residential house with a scale of 1:50, 1:100.	X
The concept of engineering perspective. A perspective of a small house using architectural complements, trees, cars, people using wooden or watercolor colors.	Eleventh
Explain drawing an internal perspective (for a residential house) for a space using a single vanishing point.	Twelfth
Explain how to make an exterior model of a residential house on a scale of 1:50 or 1:100 with an illustration of architectural complements.	Thirteenth
Workshop in the prototyping laboratory. 1 - How to prepare the site with different slopes in a stereoscopic form (training on how to show the contour lines in the models and drop buildings on them scale 1: 50.	Fourteenth and fifteenth

2 – Preparing the model of the institute in which the student studies with all its facilities (buildings, workshops and gardens, internal departments ... Etc.) on a small scale. 3 – Making a model with a standard scale for the building or buildings that are selected in the architectural drawing subject as a final project for the student.	
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Course Description :Civil Drawing

This course description provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the student to achieve, proving whether he or she has made the most of the available learning opportunities. It must be linked to the description of the programme.

Northern Technical University / Kirkuk Technical Institute	1- Educational institution
Scientific Department of Civil Technologies / Computer Drawing Branch	2- University Department / Center
Civil Drawing (CITB230)	3- Course Name/Code
Level II – Building & Construction	4- Programs in which he enters
daily	5- Available Attendance Forms
Course (Semester)	6- Semester / Year
6 hours * 15 weeks = 90 hours	7- Number of Credit Hours (Total)
/ 4 / 2024	8- The history of preparation of this description
9- Course Objectives	
- Teaching the student the basic principles of structural drawing and how to clarify ideas and transfer information.	
- Teaching the student experience and knowledge in all types of fonts in terms of shape and timing of use	
- Teaching the student how to draw structural plans of all kinds	

10- Course Structure					
Evaluation method	Method of education	Name of the unit/course or topic	Required Learning Outcomes	Number of Hours	Number of weeks
Quarterly Exams	Lectures in the studio	Construction	Technical Diploma	6	15 weeks
Daily Tests	Follow-up students during manual drawing				
Drawing paintings in the studio (Safia)	Discussions with students during the drawing				
Drawing home paintings	Drawing relevant issues in the studio				
Classroom activity, continuous attendance and non-absence					
- The student was introduced to a lot of illustrations for each type of structural elements.					

11- Infrastructure	
Vocabulary - Textbooks - External Resources - Internet	Required readings: ▪ Basic texts ▪ Course Books ▪ Other
Training courses for state departments - participation in the advisory office	Special requirements (e.g. workshops, periodicals, software and websites)
Exploratory studies for state departments - engineering consultancy	Social services (e.g. guest lectures, vocational training and field studies)

12- Acceptance	
Scientific Graduate - Average - Physical Fitness	Prerequisites
20	Minimum number of students
30	The largest number of students

13- Learning outcomes and teaching, learning and assessment methods

A- Knowledge and understanding make students able to: A1- Study and understand construction plans A2- Details and types of construction plans for foundations A3- Study the plans and structural details of the columns A4- Determine the types of joists and the details of their armament A5- Identify the types of tiles and their details A6- Expressing ideas and solutions in proportion to the ground
B - Subject-specific skills B1 – Increase the ability of students to imagine all structural elements. B2- Gaining speed and great ability to draw charts of all kinds B3- Learn to draw horizontal plans, vertical sections, cross sections and their details to show the hidden parts and fine details B4- Detecting any error or deficiency in the construction plans
Teaching and learning methods
1- Lecture style. 2- Drawing in the studio 3- Showing scientific films 4- Field visits. 5 - Student projects.
Evaluation methods
17- Daily Exams 2- Semester Exams (First and Second Semesters) 3- Daily Boards 14- Final exams 5- Solving applied problems.
C- Thinking skills C1- Increasing students' ability to imagine all structural elements C2- Gaining speed and great ability to draw charts of all kinds C3- Learn to draw horizontal plans, vertical sections, cross sections and their details to show the hidden parts and fine details C4- Detecting any error or deficiency in the construction plans
Teaching and learning methods
1- Lecture style 2- Studio 3- Presentation of scientific films 4- Field visits. , 5- Summer Training 6- Student Projects, 7- Student Research
Evaluation methods
1- Daily tests 2- Semester exams (first and second semesters) 3- Home classroom boards Final exams (theoretical and practical)
d. General and transferable skills (other skills related to employability and personal development). D1 Reading engineering diagrams D2- The ability to implement construction plans according to the needs of the work site.

- 14- Course Development Plan: The development plan is carried out through studies submitted through the annual scientific plan for course development.

Theoretical vocabulary	Week
Vocabulary details	
Introduction in construction and architectural drawing and type of lines and symbols.	1
The plan and the first floor of a residential house.	2
Front & side & section of residential house.	3
Introduction to concrete and construction principles, strength of concrete and types of stresses, types of slabs.	4
Concrete slabs load transition & necessary reinforcing in one & two way slabs.	5
The structural details for ribbed one & two way slabs.	6
Introduction to the type of concrete beams and structural details of simple supported.	7
The structural details of continuous beams.	8
The structural details of cantilever beams.	9
Introduction to the structural details of the pre-cast and pre-stressed beams.	10
The structural details of concert column type & types of ties.	11
The structural details of separated & wall footing.	12
The structural details of combined and continues footing.	13
The structural details of raft foundations.	14
The structural details of pile foundations.	15

Course Description : Principles of Structural Drawing

This course description provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the student to achieve, proving whether he or she has made the most of the available learning opportunities. It must be linked to the description of the programme.

Northern Technical University / Kirkuk Technical Institute	1- Educational institution
Scientific Department of Civil Technologies / Computer Drawing Branch	2- University Department / Center
Principles of Structural Drawing (CITC222)	3- Course Name/Code
Level II – Computer Drawing	4- Programs in which he enters
daily	5- Available Attendance Forms
Course (Semester)	6- Semester / Year
6 hours * 15 weeks = 90 hours	7- Number of Credit Hours (Total)
/ 4/ 2024	8- The history of preparation of this description
9- Course Objectives	
- Teaching the student the basic principles of structural drawing and how to clarify ideas and transfer information.	
- Teaching the student experience and knowledge in all types of fonts in terms of shape and timing of use	
- Teaching the student how to draw structural plans of all kinds	
- The student was introduced to a lot of illustrations for each type of structural elements.	
- Teaching the student to read the plans and determine the extent to which they match the reality of work.	

10- Course Structure					
Evaluation method	Method of education	Name of the unit/course or topic	Required Learning Outcomes	Number of Hours	Number of weeks
Quarterly Exams	Lectures in the studio	Computer Drawing	Technical Diploma	6	15 weeks
Daily Tests	Follow-up students during manual drawing				
Drawing paintings in the studio (Safia)	Discussions with students during the drawing				
Drawing home paintings	Drawing relevant issues in the studio				
Classroom activity, continuous attendance and non-absence					

11- Infrastructure	
Vocabulary - Textbooks - External Resources - Internet	Required readings: - Basic texts - Course Books - Other
Training courses for state departments - participation in the advisory office	Special requirements (e.g. workshops, periodicals, software and websites)
Exploratory studies for state departments - engineering consultancy	Social services (e.g. guest lectures, vocational training and field studies)

13-	Learning outcomes and teaching, learning and assessment methods	
A- Knowledge and understanding make students able to:		
A1- Study and understand construction plans		
A2- Details and types of construction plans for foundations		
A3- Study the plans and structural details of the columns		
A4- Determine the types of joists and the details of their armament		
A5- Identify the types of tiles and their details		
A6- Expressing ideas and solutions in proportion to the ground		
B - Subject-specific skills		
B1 – Increase the ability of students to imagine all structural elements.		
B2- Gaining speed and great ability to draw charts of all kinds		
B3- Learn to draw horizontal plans, vertical sections, cross sections and their details to show the hidden parts and fine details		
B4- Detecting any error or deficiency in the construction plans		
Teaching and learning methods		
1- Lecture style. 2- Drawing in the studio 3- Showing scientific films 4- Field visits. 5 - Student projects.		
Evaluation methods		
1- Scientific Graduate - Average	12- Acceptance	
4- Physical Fitness	Prerequisites	
1- Daily Exams 2- Semester Exams (First and Second Semesters) 3- Daily Boards	Final exams 5- Solving applied problems.	
C- Thinking skills		Minimum number of students
C1- Increasing students' ability to imagine all structural elements.		The largest number of students
C2- Gaining speed and great ability to draw charts of all kinds		
C3- Learn to draw horizontal plans, vertical sections, cross sections and their details to show the hidden parts and fine details		
C4- Detecting any error or deficiency in the construction plans		
Teaching and learning methods		
1- Lecture style 2- Studio 3- Presentation of scientific films 4- Field visits. , 5- Summer Training 6- Student Projects, 7- Student Research		
Evaluation methods		

1- Daily tests 2- Semester exams (first and second semesters) 3- Home classroom boards
Final exams (theoretical and practical)

d. **General and transferable skills** (other skills related to employability and personal development).

D1 Preparation of construction plans for civil engineering projects.

D2- Using the AutoCAD program in drawing structural designs for projects.

14- **Course Development Plan:** The development plan is carried out through studies submitted through the annual scientific plan for course development.

Theoretical vocabulary	Week
Vocabulary details	
Explain in detail Stress strains in structures – types of stress strains occur in structures , Types of resistances of reinforce concrete and steel.	1
Explain in detail Structural steel and its use – Typical sections of structural steel, how to extract dimensions details in the tables of structural iron – compound sections .	2
methods to connect steel sections (screws , welding) . Explain how to draw	3
Details of connecting steel columns with their bases . Explain how to draw	4
Explain how to draw Connecting steel bridges with each other, Connecting bridges with columns	5
Explain how to draw Exercises regarding the previous subjects By computer. .	6
Drawing Structural steel building with its details . Explain how to draw	7
Explain how to draw Steel components (connection by screws), Steel components (connection by welding).	8
Explain how to draw The symbols, Kinds of ceilings , One concrete ceiling with one direction.	9
Explain how to draw Concrete ceilings with two directions (horizontal schemes with their sections).	10
Explain how to draw Scheme for ceiling of building includes concrete ceilings (slab) with one direction and two directions , and cantilever ceilings(slab) .	11
how to Preparation of executive maps for a map drawn in the last week explained	12
Explain how to draw Beams and doorsteps , their kinds , kinds of rebar used in , sites of cutting and bending the rebar , bases of using hasps .	13
Explain how to draw Beams and doorsteps , using table of iron amounts	14

to present details , To continue recognizing beams in all their kinds .	
Explain how to draw Typical sections of concrete columns and kinds of connections.	15

Course Description : Advanced Space

This course description provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the student to achieve, proving whether he or she has made the most of the available learning opportunities. It must be linked to the description of the programme.

Northern Technical University / Kirkuk Technical Institute	1. Educational institution
Scientific Department of Civil Technologies / Building and Construction Branch	2. University Department / Center
Advanced Space (CITB203)	3. Course Name/Code
Level II – Building and Construction	4. Programs in which he enters
daily	5. Available Attendance Forms
Course (Semester)	6. Semester / Year
5 hours * 15 weeks = 75 hours	7. Number of Credit Hours (Total)
/ 4/ 2024	8. The history of preparation of this description
9. Course Objectives	

- | |
|---|
| - Teaching the student what he needs from the theoretical and practical foundations of the surveying subject. |
| - Providing the student with the necessary skill to carry out civil engineering work in the field of surveying.
- Provide him with the necessary information about the details of the explanation of the monitoring machine and methods of its use in important applications in civil engineering. |
| - Teaching the student how to use the monitoring and calculations device related to various problems through practical exercises. |
| - Providing the student with the skill of installing and dropping engineering works designed on the natural ground. |
| - Teaching the student on the different measurement methods when there are obstacles. |

10. Course Structure					
Evaluation method	Method of education	Name of the unit/course or topic	Required Learning Outcomes	Number of Hours	Number of weeks
Semester Exams	Lectures	Advanced Space	Technical Diploma	5	15 weeks
Written tests	Practical exercises				
Oral tests	Visit Sites				
Reports					
Field exercises					

11. Infrastructure	
Vocabulary - Textbooks - External Resources - Internet	Required readings: ▪ Basic texts ▪ Course Books ▪ Other
Training courses for state departments - participation in the advisory office	Special requirements (e.g. workshops, periodicals, software and websites)
Exploratory studies for state departments - engineering consultancy	Social services (e.g. guest lectures, vocational training and field studies)

12. Acceptance	
Scientific Graduate - Average - Physical Fitness	Prerequisites
20	Minimum number of students
30	The largest number of students

13. Learning outcomes and methods of teaching, learning and assessment	
A. Knowledge and understanding	1. Identify the theodolite device 2- Ribbing and measuring the internal horizontal angles of the polygon 3- Implementation of polygon filling and calculation of coordinates 4-Methods of measuring vertical angles 5- Learn about the types of curves and ways to drop them 6- Application and uses of triangulation
B - Subject-specific skills	1 – Read horizontal and vertical directions 2- How to measure and correct horizontal angles 3- Supervising the implementation of survey works 4- Find the height of a building 5- Horizontal curved projection
Teaching and learning methods	
1- Lecture style. 2- Laboratory 3- Presentation of scientific films 4- Field visits. 5 - Student projects. 6 - Field training.	
Evaluation methods	
1- Oral tests 2- Semester exams (first and second semesters) 3- Laboratory reports 5- Final exams (theoretical and practical) 5- Solving applied problems.	
C- Thinking skills	1- Measuring and correcting horizontal angles 2- Calculate the front and back directions of the angles 3- Calculating the coordinates of a closed and open polygon 4- Vertical angle measurement and calculation 5- Horizontal curve projection and related calculations
Teaching and learning methods	
1- Lecture Method 2- Laboratory 3- Presentation of scientific films 4- Field visits. 5- Civil workshops, 6- Summer training 7- Student projects, 8- Student research	
Evaluation methods	
1- Oral tests 2- Semester exams (first and second semesters) 3- Laboratory reports Final exams (theoretical and practical)	
d. General and transferable skills	(other skills related to employability and personal development).

1. Use theodolite monitoring device
- 2- Use of surveying tools in the field
- 3- Installing the device and preparing it to work
- 4- Implementation of engineering survey work

14. **Course Development Plan:** The development plan is carried out through studies submitted through the annual scientific plan for course development.

Theoretical vocabulary	Week
Vocabulary details	
Theodolite device, parts, uses, types, device erection, reading horizontal directions, measuring horizontal angles	First
Polygon, types of polygons, their purposes, uses, measurement and correction of the internal horizontal angles of a closed polygon	Second
Measuring the lengths of the ribs and the work of filling the polygon, drawing polygons	Third
calculate and correct the horizontal and vertical components of the sides of a closed polygon, and calculate the coordinates	Fourth
calculate and correct the horizontal and vertical components of an open polygon and calculate the coordinates	V
Methods of measuring vertical angles with theodolite device, finding the height of a building (target) that can be reached using theodolite device	Sixth
Finding the height of a building (target) that cannot be reached using the theodolite device, finding the height of a target by measuring three angles of rise or fall in the theodolite device	Seventh
Curves, their types, horizontal curves (elements of a simple circular curve) and equations used in the design of the curve	Eighth
Methods of projecting horizontal curves, method of columns erected on the tangent (Baker method), method of columns erected on the hypotenuse, method of deviation angles, projection of curves using theodolite devices	Ninth
Convex and concave vertical curves, their elements, calculation of the length of the curve, calculations related to the vertical curve	X
Triangulation, its purposes, uses, selection of triangulation points, triangulation networks, measurement of the baseline of triangulation	Eleventh
Measuring the horizontal angles of the triangulation network, the tachometric area, types of tachometer devices	Twelfth
Introduction to the comprehensive station device, device components, uses, buttons and icons, device settings	Thirteenth

Surveying Program, Stake out Program, Surveying and Volume Program	Fourteenth
Remote Altitude Program, Grid Software	Fifteenth

Course Description : Computer Applications

This course description provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the student to achieve, proving whether he or she has made the most of the available learning opportunities. It must be linked to the description of the programme.

Northern Technical University / Kirkuk Technical Institute	1. Educational institution
Scientific Department of Civil Technologies / Building and Construction Branch and the construction of roads and computer drawing	2. University Department / Center
Computer Applications	3. Course Name/Code
Second level	4. Programs in which he enters
daily	5. Available Attendance Forms
Course (Semester)	6. Semester / Year
3 hours * 15 weeks = 45 hours	7. Number of Credit Hours (Total)
/ 4/ 2024	8. The history of preparation of this description
9. Course Objectives	
- Introducing the student to the interface of the AutoCAD program.	

- Introducing the student to the draw commands and modify modification commands .
- Introducing the student to the command of writing text and dimension.
- Introducing the student to solid objects and how to combine and subtract them from each other union , subtract
- Introducing the student to the orders of Chamfer, Slice, Section, Fillet
- Teaching the student to draw home maps and buildings plan
- Teaching the student to draw facades for buildings
- Teaching the student to draw sections of buildings section

10. Course Structure					
Evaluation method	Method of education	Name of the unit/course or topic	Required Learning Outcomes	Number of Hours	Number of weeks
Semester Exams	Lectures	Computer Applications	Technical Diploma	3	15 weeks
Written tests	Laboratory applications				
Oral tests					
Reports					
Laboratory exercises					

11. Infrastructure	
Vocabulary - Textbooks - External Resources - Internet	Required readings: - Basic texts - Course Books - Other
Training courses for state departments - participation in the advisory office	Special requirements (e.g. workshops and periodicals)
Exploratory studies for state departments - engineering consultancy	Social services (e.g. guest lectures, vocational training and field studies)

12. Acceptance	
Scientific Graduate - Average - Physical Fitness	Prerequisites
20	Minimum number of students
30	The largest number of students

18-	Learning outcomes and teaching, learning and assessment methods
A. Knowledge and understanding	
A1- Mastering the instructions of the AutoCAD program	
A2- Details of mapping non-structure.	
A3- How to put furniture and modern packaging materials.	
A4- How to design facades with modern building materials	
A5- How to store a graphics file as a pdf	
A6- How to print drawings in different sizes.	
B - Subject-specific skills	
B1 – Identify the types of programs used in drawing.	
B2- How to link the AutoCAD program with other programs	
B3- How to calculate the quantities of cutting and backfilling in AutoCAD	
B4- How to prepare engineering plans	
Teaching and learning methods	
1- Lecture style. 2- Application in the laboratory 3- Presentation of scientific films 4- Field visits. 5 - Student projects. .	
Evaluation methods	
1- Oral exams 2- Semester exams (first and second semesters) 3- Daily application of the lecture	
6- Final exams (theoretical and practical) 5- Homework.	
C- Thinking skills	
C1 Increase students' ability to speed up the completion of drawings.	
C2- Increasing students' ability to understand the drawn plans.	
C3- The student acquires experience on design in a way that keeps pace with development	
C4- Learn how to prepare engineering plans.	
Teaching and learning methods	
1- Lecture Method 2- Computer Lab 3- Presentation of scientific films, 4- Summer Training 5- Student Projects, 6- Student Research	
Evaluation methods	
1- Oral tests 2- Semester exams (first and second semesters) 3- Laboratory applications	
Final exams (theoretical and practical)	
d. General and transferable skills (other skills related to employability and personal development).	
D1- Use the computer well.	
D2- Using the AutoCAD program in all engineering fields	
D3- Speed of completion of drawings	

14- Course Development Plan: The development plan is carried out through studies submitted through the annual scientific plan for course development.

Theoretical vocabulary	Week
Vocabulary details	
Clarifying the importance of the program (Auto CAD), identifying the program's interface, determining the ways to choose most AutoCAD commands, how to customize the program's interface, explaining the auxiliary commands (Limits, Units), accuracy tools (Grids, Snap, Ortho, Polar) and commands (Zoom, Pan), how to choose items, explaining the (File) menu, how to create a new file and identify drawing commands (Draw).	First The second
Explain the Modify commands , Object Snap tools, and Text commands with how to define a new style of writing .	Third and the fourth
Explain the Hatch and Gradient commands and identify the Dimensions commands with how to define a new Dimension Style.	V and the sixth
Control the specifications of the drawing (Line type, Color), Properties dialog box , and command (Match properties), determine the width of the line (Lineweight), layers and indicate how to print (Plot) for a specific drawing.	Seventh and eighth
1- Principles of drawing in three dimensions, order (Elevation) and command (Thickness). 2- Identify the ports of view (3D View). 3- Clarifying the preview ports (Viewports) for three-dimensional shapes. 4- Identify the importance of shade. 5- The importance of the user coordinate system (UCS).	Ninth and tenth
Orders for triple crusty drawing (Surfaces).	Eleventh
Triple drawing commands (Solids) and command (Slice) and explain the commands of (Union , Subtract, and Intersect) from the orders (Solids Editing).	Twelfth and thirteenth
1- Explanation of the tools (3D Pan , 3Dzoom , 3D Orbit and 3D Continuous Orbit). 2- Shading and materials (Render) and explain how to add backgrounds, materials, lighting, people and trees to the scene. 3- Illustrate how to transform a three-dimensional shape into perspective	Fourteenth and fifteenth

and store it as an image.	
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Course Description : Construction Techniques

This course description provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the student to achieve, proving whether he or she has made the most of the available learning opportunities. It must be linked to the description of the programme.

Northern Technical University / Kirkuk Technical Institute	1. Educational institution
Scientific Department of Civil Technologies / Building and Construction Branch	2. University Department / Center
Construction techniques (CITB208)	3. Course Name/Code
Level II – Building & Construction	4. Programs in which he enters
daily	5. Available Attendance Forms
Course (Semester)	6. Semester / Year
3 hours * 15 weeks = 45 hours	7. Number of Credit Hours (Total)
/ 4 / 2024	8. The history of preparation of this description
9. Course Objectives	

10. Course Structure					
Evaluation method	Method of education	Name of the unit/course or topic	Required Learning Outcomes	Number of Hours	Number of weeks
Semester Exams	Lectures	Construction Techniques	Technical Diploma	3	15 weeks
Written tests	Laboratory experiments				
Oral tests	Visit Sites				
Reports					
Field exercises					

- Training the student on planning foundations using surveying devices.
- Teaching the student how to link the building units with most types of linking used in construction work.
- Teaching the student how to pour ordinary and reinforced concrete.
- Introducing the student to the work of reinforcement and the correct way to use it, iron and structural sections, and teach him the types and methods of termination used and wrapping the walls with stone Al-Halan.
- Teaching the student periodic maintenance and permanent maintenance.

11. Infrastructure	
Vocabulary - Textbooks - External Resources - Internet	Required readings: ▪ Basic texts ▪ Course Books ▪ Other
Training courses for state departments - participation in the advisory office	Special requirements (e.g. workshops, periodicals, software and websites)
Exploratory studies for state departments - engineering consultancy	Social services (e.g. guest lectures, vocational training and field studies)

12. Acceptance	
Scientific Graduate - Average - Physical Fitness	Prerequisites
20	Minimum number of students
30	The largest number of students

13. Learning outcomes and methods of teaching, learning and assessment	
A. Knowledge and understanding	A1- Identify all paragraphs of construction works A2- Details of the types of building units used in construction work and roads linking the units A3- Providing the student with the necessary skill to choose moisture inhibitors A4- Teaching the student how to extend the pipes of pure water and sewage water for the building A5- Providing the student with the necessary skill to determine the type of material used in the finishing work of buildings
B - Subject-specific skills	1- The use of surveying devices for foundation planning work 2- Use moisture barriers optimally 3- Choose the type of building unit as needed 4- Wall wrapping works 5- Determining the locations of basins, bathtubs, sewage pipes and clear water pipes
Teaching and learning methods	
1- Lecture style. 2- Laboratory 3- Presentation of scientific films 4- Field visits. 5 - Student projects. 6 - Field training.	
Evaluation methods	
1- Oral tests 2- Semester exams (first and second semesters) 3- Laboratory reports 4- Final exams (theoretical and practical) 5- Solving applied problems.	
C- Thinking skills	C1 – Identify moisture suppressants C2- Determine the method used to implement the excavation section according to the type, size and accuracy of the work C3- Implementation of packaging works Balkashi C4- Determine the method used for pouring concrete
Teaching and learning methods	
1- Lecture Method 2- Laboratory 3- Presentation of scientific films 4- Field visits. 5- Civil workshops, 6- Summer training 7- Student projects, 8- Student research	
Evaluation methods	
1- Oral tests 2- Semester exams (first and second semesters) 3- Laboratory reports Final exams (theoretical and practical)	

d. **General and transferable skills** (other skills related to employability and personal development).

D1- The use of surveying devices in the planning of foundations

D2- Determining the type of connection used in linking the building units (bricks, concrete blocks, thermiston) with each other in construction work

14. **Course Development Plan:** The development plan is done through studies submitted through the annual scientific plan for course development.

Practical vocabulary	Week
Vocabulary details	
Planning foundations, using surveying devices. Excavations, and attribution of the sides of the excavation.	The first
Work and reinforcement of the foundation for a wall or support.	Second
Brick construction, English bonding, German bonding, other types of brickwork.	Third
Building by blocks (block, thermiston).	Fourth
Wooden mold works, training in making wooden mold for column, bridge, stairs and roofs.	V
Plating regular and reinforced concrete and using manual knocking, as well as training in automatic mixing.	Sixth
Rebar works, rebar, the correct way to use it, making reinforcing models for a column, roof and bridge	Seventh
Steel works, steel structural sections and aluminum profiles, and when they are not available, a scientific film was presented for that. Application Balkashi and Steiker.	Eighth
Moisture suppressant works, training on the use of some moisture inhibitors and how to use them optimally such as asphalt felt, bituminous materials and according to what is available.	Ninth
Whiteness work, whiteness of a wall using plaster.	X
Ficus and prose works: 1- Using cement mortar. 2- Using cement mortar - Noura.	Eleventh
Packaging works with furfur cashes.	Twelfth
Wall wrapping works, wall packaging using solutions.	Thirteenth
Sanitary works: Training the student on how to lay sewage pipes, clear water pipes, sink sites, bathtubs, toilets, etc.	Fourteenth
Road works, foundation and subfoundation work for a road (as a model).	Fifteenth

Course Description: Drawing roads and irrigation

This course description provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the student to achieve, proving whether he or she has made the most of the available learning opportunities. It must be linked to the description of the programme.

Northern Technical University / Kirkuk Technical Institute	1. Educational institution
Scientific Department Civil Technologies / Minor Computer Drawing and Road Construction	2. University Department / Center
Road Painting and Irrigation (CITC217)	3. Course Name/Code
The second level - computer drawing / road construction	4. Programs in which he enters
daily	5. Available Attendance Forms
Course (Semester)	6. Semester / Year
4 hours * 15 weeks = 60 hours	7. Number of Credit Hours (Total)
/ 4 / 2024	8. The history of preparation of this description
9. Course Objectives	
- Teaching the student the basic principles of drawing road plans and irrigation channels.	

- | |
|---|
| - Teaching the student experience and knowledge in calculating and drawing longitudinal and transverse sections |
| - Teaching the student how to draw the general plan of the road |
| - Introduce the student to the calculation and drawing of horizontal and vertical curves |
| - Teaching the student to draw types of intersections. |

10. Course Structure					
Evaluation method	Method of education	Name of the unit/course or topic	Required Learning Outcomes	Number of Hours	Number of weeks
Quarterly Exams	Lectures in the studio	Computer Drawing / Road Construction	Technical Diploma	4	15 weeks
Daily Tests	Follow-up students during manual drawing				
Drawing paintings in the studio (Safia)	Discussions with students during the drawing				
Drawing home paintings	Drawing relevant issues in the studio				
Classroom activity, continuous attendance and non-absence					

11. Infrastructure	
Vocabulary - Textbooks - External Resources - Internet	Required readings: - Basic texts - Course Books - Other
Training courses for state departments - participation in the advisory office	Special requirements (e.g. workshops, periodicals, software and websites)
Exploratory studies for state departments - engineering consultancy	Social services (e.g. guest lectures, vocational training and field studies)

13. Learning outcomes and methods of teaching, learning and assessment		
A- Knowledge and understanding, making students able to: A1- Study and understand engineering plans A2- Details and types of road plans A3- Study of plans and details of longitudinal and transverse sections of rigid and flexible roads A4- Details of transverse sections for bridges, tunnels and railways A5- Details and types of intersections and arches A6- Knowing how to raise the edge of roads (excessive height) in horizontal curves		
B - Subject-specific skills B1 – Increase the ability of students to imagine all kinds of occasional pieces B2- Gaining speed and great ability to draw plans for arches and intersections of all kinds B3- Learn to draw horizontal plans, longitudinal sections, cross sections and their details to show the fine details B4- Calculations and drawing of the elements of the horizontal curve and vertical curves		
12-Acceptance	Scientific Graduate - Average	Prerequisites
1- Lecture style. 20	Physical Fitness 2- Drawing in the studio	3- Showing scientific films 4- Field visits.
5- Student projects.	Minimum number of students	
30	Evaluation methods	The largest number of students
6- Daily Exams 2- Semester Exams (First and Second Semesters) 3- Daily Boards 7- Final exams 5- Solving applied problems.		
C- Thinking skills C1- Increasing students' ability to know the details of the cross-sections of road facilities C2- Gaining speed and great ability to draw charts of all kinds C3- Learn to draw horizontal charts, longitudinal sections, cross sections, their details and calculations C4- Ability to read charts		

Teaching and learning methods
1- Lecture style 2- Studio 3- Presentation of scientific films 4- Field visits. , 5- Summer Training 6- Student Projects, 7- Student Research
Evaluation methods
1- Daily tests 2- Semester exams (first and second semesters) 3- Home classroom boards Final exams (theoretical and practical)
d. General and transferable skills (other skills related to employability and personal development). D1Preparation of plans for civil engineering projects related to road facilities and their attachments D2- Making calculations for charts and transferring them to the chart according to a specific scale
14. Course Development Plan: The development plan is carried out through studies submitted through the annual scientific plan for course development.

Theoretical vocabulary	Week
Vocabulary details	
Introduction to the evolution of roads in race. Technical terms used in drawing roads and transportation.	First
Cross section of flexible roads	Second
Cross-section of solid roads	Third
Cross sections in burial and cutting state	Fourth and fifth
Using computers to draw the cross section of flexible roads	Sixth
Cross sections erected on the longitudinal section of bridges and tunnels for roads and railways	Seventh and eighth
Drawing cross sections of bridges and tunnels.	Ninth
Highway entrances and exits	Tenth and eleventh
explain how to draw circular field intersections	Twelfth and thirteenth
Full details of the longitudinal section of a road	Fourteenth and fifteenth

Course Description : Building Maintenance

This course description provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the student to achieve, proving whether he or she has made the most of the available learning opportunities. It must be linked to the description of the programme.

Northern Technical University / Kirkuk Technical Institute	1. Educational institution
Scientific Department of Civil Technologies / Building and Construction Branch	2. University Department / Center
Building Maintenance (CIT171)	3. Course Name/Code
Level II – Building & Construction	4. Programs in which he enters
daily	5. Available Attendance Forms
Course (Semester)	6. Semester / Year
3 hours * 15 weeks = 45 hours	7. Number of Credit Hours (Total)
/ 4 / 2024	8. The history of preparation of this description

10. Course Structure					
Evaluation method	Method of education	Name of the unit/course or topic	Required Learning Outcomes	Number of Hours	Number of weeks
Semester Exams	Lectures	Building Maintenance	Technical Diploma	3	15 weeks
Written tests	Laboratory experiments				
Oral tests	Visit Sites				
Reports					
Field exercises					

9. Course Objectives
- Teaching the student all types of maintenance of buildings.
- Identify the types of buildings according to the nature of their use.
- Providing the student with full knowledge of the components of buildings and loads in facilities and structural stresses in buildings.
- Providing the student with full knowledge of the basics of cracks in buildings and ways to treat them.
- Teaching the student periodic maintenance and permanent maintenance.

11. Infrastructure	
Vocabulary - Textbooks - External Resources - Internet	Required readings: ▪ Basic texts ▪ Course Books ▪ Other
Training courses for state departments - participation in the advisory office	Special requirements (e.g. workshops, periodicals, software and websites)
Exploratory studies for state departments - engineering consultancy	Social services (e.g. guest lectures, vocational training and field studies)
12. Acceptance	
Scientific Graduate - Average - Physical Fitness	Prerequisites
20	Minimum number of students
30	The largest number of students

13. Learning outcomes and methods of teaching, learning and assessment	
A. Knowledge and understanding	
A1- Identification of factors causing subsidence in the soil	
A2- Determining the effect of soil subsidence on the components of buildings and the damage caused by subsidence	
A3- Determining the damage of moisture in buildings, their sources and how to treat them	
A4- Flatness details and layers	
A5- Types of joints in buildings	
B - Subject-specific skills	
B1 – Increasing the student's knowledge of the types of maintenance carried out on the building	
B2- Gaining speed and ability to determine the type of treatment for cracks in the building	
B3- The ability to apply external and internal floors	
B4- Gaining speed and ability to identify the factors causing subsidence in the soil and how to treat them	
Teaching and learning methods	
1- Lecture style. 2- Laboratory 3- Presentation of scientific films 4- Field visits. 5 - Student projects. 6 - Field training.	
Evaluation methods	
8- Oral tests 2- Semester exams (first and second semesters) 3- Laboratory reports 9- Final exams (theoretical and practical) 5- Solving applied problems.	
C- Thinking skills	
C1 – Increasing the student's knowledge of the types of maintenance carried out on the building	
C2- Gaining speed and ability to determine the type of treatment for cracks in the building	
C3- The ability to apply external and internal floors	
C4- Gain speed and ability to identify the factors causing subsidence in the soil and how to treat them	
Teaching and learning methods	
1- Lecture Method 2- Laboratory 3- Presentation of scientific films 4- Field visits. 5- Civil workshops, 6- Summer training 7- Student projects, 8- Student research	
Evaluation methods	

1- Oral tests 2- Semester exams (first and second semesters) 3- Laboratory reports

Final exams (theoretical and practical)

d. **General and transferable skills** (other skills related to employability and personal development).

D1- Using innovative building solutions to address cracks in buildings

D2- Application of moisture inhibitors to avoid damage caused by moisture in the building

14. **Course Development Plan:** The development plan is done through studies submitted through the annual scientific plan for course development

Theoretical vocabulary	Week
Vocabulary details	
Maintenance and its definition - types of maintenance - types of buildings according to the nature of their use	The first
Structural materials and their properties, building components, loads in facilities and ways of transmission, stresses in the structural parts of buildings	Second
Damage, Maintenance & Treatments	Third
The basics of the occurrence of cracks and ways to avoid them, concrete cracks	Fourth
Definition of moisture, moisture damage, sources of moisture, moisture reseals	V
Uses of moisture inhibitor in building parts, damages and treatments, exudation in concrete structures	Sixth
The effect of soil subsidence on building components, types of subsidence, damage caused by subsidence	Seventh
Factors causing subsidence in the soil, soil landing treatments	Eighth
What are the finishing materials, the damage in the finishing materials?	Ninth
Types of finishing materials, damages and treatments, ground insect damage	X
Application of external floors, application of internal flooring	Eleventh
Flatness	Twelfth
Joints in buildings	Thirteenth
Cutouts	Fourteenth
Windows, doors and other metal parts	Fifteenth

Course Description: Soil Mechanics

This course description provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the student to achieve, proving whether he or she has made the most of the available learning opportunities. It must be linked to the description of the programme.

Northern Technical University / Kirkuk Technical Institute	1. Educational institution
Scientific Department of Civil Technologies / Branch (Road Construction, Building and Construction)	2. University Department / Center
Soil (CITB222)	3. Course Name/Code
Level II – (Construction and Roads Sub)	4. Programs in which he enters
daily	5. Available Attendance Forms
Course (Semester)	6. Semester / Year
4 hours * 15 weeks (per semester) = 60 hours per semester	7. Number of Credit Hours (Total)

/ 4/ 2024	8. The history of preparation of this description
9. Course Objectives	
- Teaching the student what he needs from the theoretical and practical foundations of the soil and analyzing his information.	
- Providing the student with the necessary skill to carry out laboratory and on-site tests of the soil. - Provide him with the necessary information on the details of the preparation of soil investigation tests and the preparation of the technical report.	
- Teaching the student how to control and drain groundwater and its effects on the foundations of facilities.	
- Providing the student with the skill of determining the size of soil problems and how to treat them.	
- Teaching the student the necessary skills to calculate the jurisprudence imposed on the soil and analyze its effects.	

10. Course Structure					
Evaluation method	Method of education	Name of the unit/course or topic	Required Learning Outcomes	Number of Hours	Number of weeks
Midterm Exams	Lectures	Soil mechanics	Technical Diploma	4	15 weeks
Written tests	Laboratory experiments				
Oral tests	Visit Sites				
Reports					
Field exercises					

11. Infrastructure	
Vocabulary - Textbooks - External Resources - Internet	Required readings: ▪ Basic texts ▪ Course Books ▪ Other
Training courses for state departments - participation in the advisory office	Special requirements (e.g. workshops, periodicals, software and websites)
Exploratory studies for state departments - engineering consultancy	Social services (e.g. guest lectures, vocational training and field studies)

12. Acceptance	
Scientific Graduate - Average - Physical Fitness	Prerequisites
20	Minimum number of students
30	The largest number of students

13. Learning outcomes and methods of teaching, learning and assessment	
A. Knowledge and understanding	
A1-Soil and soil composition	
A2- Details and types of soils	
A3- Soil classification for construction works	
A4- Identify soil problems and how to treat them	
A5- Determination and analysis of stresses on the soil	
A6- Effect of groundwater and soil permeability	
B - Subject-specific skills	
B1 – Soil classification for construction works.	
B2- Application of the granular gradient curve of the soil	
B3- Finding the permeability coefficient of the soil	
B4- Application of laboratory and field tests of the soil	
B5- Preparation of the technical report for soil investigations	
Teaching and learning methods	
1- Lecture style. 2- Laboratory 3- Presentation of scientific films 4- Field visits. 5 - Student projects. 6 - Field training.	
Evaluation methods	
10- Oral Tests 2- Written Exams (Mid-Course) 3- Laboratory Reports 11- Final exams (theoretical and practical) 5- Solving applied problems.	
C- Thinking skills	
C1 – Soil classification for construction works.	
C2- Application of granular gradient curve to soil	
C 3 - Finding the permeability coefficient of the soil	
C4- Application of laboratory and field tests of the soil	
C5- Preparation of the technical report for soil investigations	
Teaching and learning methods	
1- Lecture Method 2- Laboratory 3- Presentation of scientific films 4- Field visits. 5- Civil workshops, 6- Summer training 7- Student projects, 8- Student research	
Evaluation methods	
1- Oral tests 2- Semester exams (first and second semesters) 3- Laboratory reports Final exams (theoretical and practical)	
d. General and transferable skills (other skills related to employability and personal development).	
D1-Use Calculator	
D2-Tightening of wooden moldings	

D3-Mechanics Workshops

14. **Course Development Plan:** The development plan is done through studies submitted through the annual scientific plan for course development

Theoretical vocabulary	Week
Vocabulary details	
Definition of soil, geological introduction to rock types, how soil is formed from rocks.	The first
Soil components, physical properties of the soil (moisture content, porosity, ratio of voids, wet and dry density, saturated and submerged density, specific weight).	Second
Granular analysis of the soil (sieves method and condensate method).	Third and fourth
Soil plasticity properties (fluidity limit, plasticity limit, shrinkage limit)	V
Soil classification, using the Unified Classification System.	Sixth and seventh
Permeability, coarse soil permeability, soft soil permeability, field and laboratory measurement methods.	Eighth and ninth
Types of stresses in the soil, Total Stress and Effective Stress.	X
Lateral Earth Pressure with an explanation of the types of filters.	Eleventh
Soil Stabilization, Compaction.	Twelfth
Types of laboratory compaction tests, field compaction methods.	Thirteenth
Other methods to improve soil properties and stabilization (cement fixation, asphalt fixation, inflorescence fixation).	Fourteenth and fifteenth

Course Description : Health Fee

This course description provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the student to achieve, proving whether he or she has made the most of the available learning opportunities. It must be linked to the description of the programme.

Northern Technical University / Kirkuk Technical Institute	1. Educational institution
Scientific Department of Civil Technologies / Computer Drawing Branch	2. University Department / Center
Health fee CITC231	3. Course Name/Code
Level II – Health Fee	4. Programs in which he enters
daily	5. Available Attendance Forms
Course (Semester)	6. Semester / Year
3 hours * 15 weeks = 45 hours	7. Number of Credit Hours (Total)
/ 4 / 2024	8. The history of preparation of this description
9. Course Objectives	
- Enable the student to understand all health plans.	
- Teach the student to draw health plans.	
- Teaching the student to draw the parts of the water liquefaction station.	
- Introducing the student to the concept of water filtering stages.	
- Teach the student how to draw a sewage map for a house.	
- Teaching the student to draw health symbols.	

10. Course Structure

Evaluation method	Method of education	Name of the unit/course or topic	Required Learning Outcomes	Number of Hours	Number of weeks
Quarterly Exams	Lectures in the studio	Health Fee	Technical Diploma	3	15 weeks
Daily Tests	Follow-up students during manual drawing				
Drawing paintings in the studio (Safia)	Drawing relevant issues in the studio				
Drawing home paintings					
Classroom activity, continuous attendance and non-absence					

11. Infrastructure

Vocabulary - Textbooks - External Resources - Internet	Required readings: - Basic texts - Course Books - Other
Training courses for state departments - participation in the advisory office	Special requirements (e.g. workshops and periodicals)
Exploratory studies for state departments - engineering consultancy	Social services (e.g. guest lectures, vocational training and field studies)

13. Learning outcomes and methods of teaching, learning and assessment

A. Knowledge and understanding

- A1- The student's knowledge of the types of sanitation
- A2- Drawing details of rotting ponds
- A3- The student's knowledge of the drawing of sedimentation basins
- A4- The student's knowledge of biological treatment with a detailed drawing
- A5- The student's knowledge of the types of inspection basins.
- A6- The student's knowledge of water tanks in cities.

B - Subject-specific skills

- B1 – Increase students' ability to understand sewage plans.
- B2- Gaining speed and great ability to draw health plans of all kinds
- B3- Learn to draw rotting and inspection diagrams
- B4- Learn to draw sedimentation basins.

Teaching and learning methods

- 1- Lecture style. 2- Drawing in the studio 3- Showing scientific films 4- Field visits. 5 - Student projects.

Evaluation methods

- 1- Oral exams 2- Semester exams (first and second semesters) 3- Daily and home boards
- 4- Final exams (theoretical and practical) 5- Solving problems related to the subject in the studio.

12. Acceptance C- Thinking skills

Scientific Graduate C- Increasing students' ability to understand sewage plans

20 C2- Gaining speed and great ability to draw health plans of all kinds Minimum number of students

30 C3- Learn to draw rotting and inspection diagrams The largest number of students

C4- Learn to draw sedimentation basins.

Teaching and learning methods

- 1- Lecture style 2- Studio 3- Presentation of scientific films 4 - Drawing in the studio, 5- Summer training 6- Student projects, 7- Student research

Evaluation methods

- 1- Daily Exams 2- Semester Exams (First and Second Semester) 3- Daily and Home Boards
- 4. Final exams 5. Solve issues related to the subject.

d. **General and transferable skills** (other skills related to employability and personal development).

D1- Preparation of sanitary plans for civil engineering projects

D2- Using the AutoCAD program in drawing designs and sewage plans.

14- **Course Development Plan:** The development plan is carried out through studies submitted through the annual scientific plan for course development.

Theoretical vocabulary	Week
Vocabulary details	
Explanation of an overview of the subject of health drawing and its relationship to our daily life	First week
Clarification of symbols in the health drawing material	Second week
Details of the water tank and water boiler with the distribution scheme of sanitary devices and hot and cold water installations	Third week
Longitudinal and transverse sections of a concrete check basin of bricks	Fourth week
A plan for the distribution and installations of hot and cold water with the establishment of a sewage network for a residential house	Fifth week
Horizontal scheme of sintering and sedimentation basin	Week Six
Longitudinal scheme in sintering and sedimentation basins	Week seven
Septic basins and sink (filtration basin) with inspection basins	Week eight
Longitudinal scheme in a water treatment project	Week Nine
Horizontal scheme of the water purification project	Week Ten
Chart showing a vertical section of a dwelling with sanitary foundations	Week Eleven
Horizontal and sectional outline in a rotting basin and sink	Twelfth week
Horizontal scheme of the sewer network of the residential group with a longitudinal section in the sewer network of a residential neighborhood	Thirteenth week
Cross section of circular sedimentation basin	Fourteenth week
General plan of the water purification project	Fifteenth week

Course Description : Construction Machinery

This course description provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the student to achieve, proving whether he or she has made the most of the available learning opportunities. It must be linked to the program description.

Northern Technical University / Kirkuk Technical Institute	1- Educational institution
Scientific Department of Civil Technologies / Building and Construction Branch	2- University Department / Center
Construction Machinery	3- Course Name/Code
Level II – Building and Construction	4- Programs in which he enters
Daily as per the weekly schedule	5- Available Attendance Forms
Course (Semester)	6- Semester / Year
2 hours * 15 weeks = 30 hours	7- Number of Credit Hours (Total)
/ 4/ 2024	8- The history of preparation of this description
9- Course Objectives	
- Determine the productivity of the machines and the cost of their operation and supervise the completion of the work well.	
- Construction equipment, the importance of machinery, ways to obtain them, and the advantages and disadvantages of owning or renting machines.	

- Teaching the student to calculate the costs and ownership of machines (the cost of extinction, investment, maintenance and repair).
- Teaching the student to calculate the cost and ownership of machinery, operating costs (fuel costs, oil costs).
- Providing the student with the skill of identifying special machines, standard machines, and comparing them

10- Course Structure

Evaluation method	Method of education	Name of the unit/course or topic	Required Learning Outcomes	Number of Hours	Number of weeks
Semester Exams	Lectures	Building & Construction	Technical Diploma	2	15 weeks
Written tests	Visit Sites				
Oral tests	Scientific films				
Reports					
Field exercises					

11- Infrastructure

Vocabulary - Textbooks - External Resources - Internet	Required readings: - Basic texts - Course Books - Other
Training courses for state departments - participation in the advisory office	Special requirements (e.g. workshops, periodicals, software and websites)
Exploratory studies for state departments - engineering consultancy	Social services (e.g. guest lectures, vocational training and field studies)

12- Acceptance	
Scientific Graduate - Industry Graduate - Average - Physical Fitness	Prerequisites
20	Minimum number of students
30	The largest number of students

13- Learning outcomes and teaching, learning and assessment methods

A. Knowledge and understanding

A1- Calculation of the cost and ownership of machines (cost of destruction, investment, maintenance and repair)

A2- Calculation of the cost and ownership of machinery, operating costs (fuel costs, oil costs)

A3- Special machines, standard machines, and differentiation

A4- Engineering foundations for engineering machinery works, including (resistance to movement and the effect of inclination)

A5- Transport unit machines, tiled and untiled road trucks, classification of trucks according to multiple factors, tippers, productivity calculation

A6- Soil compaction machines, including their importance, types, places of use.

B - Subject-specific skills

B1 – Application of the cumulative curve of quantities.

B2- Quality control of the number of construction machines

B3- Supervising the implementation of construction works

B4- Calculating the cost and ownership of construction machinery

B5- Calculating the cost of extinction and ownership of construction machinery

Teaching and learning methods

1- Lecture style. 2- Presentation of scientific films 3 - Field visits. 4 - Student projects. 5 - Field training.

Evaluation methods

19- Oral Exams 2- Semester exams (first and second semesters) 3- Field reports

17- Final exams (theoretical and practical) 5- Solving applied problems.

C- Thinking skills

C1- Preparing an estimative statement of the number of machines used in the project.

C2- Calculation of the quantities of excavation and backfilling in construction works

C3- Supervising the implementation of construction works

C4- Calculation of the shortest period for the completion of the project

Teaching and learning methods

1- Lecture Method 2- Laboratory 3- Presentation of scientific films 4- Field visits. 5- Civil workshops, 6- Summer training 7- Student projects, 8- Student research

Evaluation methods

1- Oral tests 2- Semester exams (first and second semesters) 3- Laboratory reports

Final exams (theoretical and practical)

d. **General and transferable skills** (other skills related to employability and personal development).

D1-Use Calculator

D2- Knowing the details and productivity of construction machines used in projects

D3- Distinguish between special and standard machines

- 14- **Course Development Plan:** The development plan is carried out through studies submitted through the annual scientific plan for course development.

Theoretical vocabulary	Week
Vocabulary details	
Construction equipment and factors that are taken into account when choosing equipment and methods of obtaining it.	The first
Calculate the cost of owning and operating construction equipment.	Second and the third
Special machines, standard machines, and the trade-off between them.	Fourth
Engineering foundations for construction machinery works.	V
Quarry (Dozer).	Sixth
Shovel loading and productivity calculation .	Seventh
Earthworks machines and the factors that are taken into account when using them.	Eighth
Machines of transport units, their types and calculation of their productivity.	Ninth and tenth
Included and skimmers and calculate their productivity.	Eleventh
Soil compaction equipment, types, use and calculation of its productivity.	Twelfth
Concrete production equipment.	Thirteenth
Lifting and hammering machines and equipment.	Fourteenth
Pumping machines and equipment and air compressors.	Fifteenth

Course Description : Railway and Airport Engineering

This course description provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the student to achieve, proving whether he or she has made the most of the available learning opportunities. It must be linked to the description of the programme.

Northern Technical University / Kirkuk Technical Institute	1- Educational institution
Scientific Department of Civil Technologies / Road Construction Branch	2- University Department / Center
Railway and airport engineering (CITH232)	3- Course Name/Code
Level II – Road Construction	4- Programs in which he enters
Daily according to the weekly lesson schedule	5- Available Attendance Forms
Course (Semester)	6- Semester / Year
2 hours * 15 weeks = 30 hours	7- Number of Credit Hours (Total)
/ 4/ 2024	8- The history of preparation of this description
9- Course Objectives	
- Teaching the student what he needs from the knowledge of airports and railways .	

10- Course Structure					
Evaluation method	Method of education	Name of the unit/course or topic	Required Learning Outcomes	Number of Hours	Number of weeks
Semester Exams	Lectures	Railway and Airport Engineering	Technical Diploma	2	15 weeks
Written tests					
Oral tests	Visit Sites				
Reports					
- Identify the types of airports according to the nature of their use, identify the railways and the importance of transport in both types of air transport by planes and land transport by rail. - Providing the student with full knowledge of the components of airports, sections and stations of the airport, as well as full knowledge of railways, types of trains and the importance of trains in daily work. - Providing the student with full knowledge of the basics of airports and railways and the advantages of air and land transport. - Teaching the student periodic maintenance and permanent maintenance.					

11- Infrastructure	
Vocabulary - Textbooks - External Resources - Internet	Required readings: ▪ Basic texts ▪ Course Books ▪ Other
Training courses for state departments - participation in the advisory office	Special requirements (e.g. workshops, periodicals, software and websites)
Exploratory studies for state departments - engineering consultancy	Social services (e.g. guest lectures, vocational training and field studies)

12- Acceptance	
Scientific Graduate - Average - Physical Fitness	Prerequisites
20	Minimum number of students
30	The largest number of students

13- Learning outcomes and teaching, learning and assessment methods

A. Knowledge and understanding

A1- Classification of types of airports and trains

A2- Determining air transport by planes and road transport by rail in the daily work of the human being

A3- Advantages of air transport and land transport in economic terms

A4- Airports, railways and trains details

A5- Types of trains and planes

B - Subject-specific skills

B1 – Increasing the student's knowledge of the types of airports and railways that exist in the world

B2- Gaining speed and the ability to determine the type of aircraft and trains

B3- The ability to know the types of air and land transport and the advantages of transport

B4- Gain speed and the ability to determine the comfort and safety of air and land transport

B5- The capacity of land transport is large so that it transports large loads

Teaching and learning methods1- Lecture style. 2- Reports 3- Presentation of scientific films 4- Field visits.
5 - Student projects.**Evaluation methods**20- Oral Exams 2- Semester Exams (First and Second Semesters) 3- Reports
18- Final exams (theoretical and practical) 5- Solving applied problems.**C- Thinking skills**

C1 – Increasing the student's knowledge of the types of air and land transport

C2- Gaining speed and ability to determine the types of air and land transport

C3- The student's knowledge of the advantages of air and land transport and the comfort and safety he possesses

C4- The student's knowledge of the economical cost of transportation, large loads in railways, especially trains.

Teaching and learning methods1- Lecture style 2- Student reports 3- Presentation of scientific films 4- Field visits.
5- Civil workshops 7- Student projects,**Evaluation methods**

1- Oral tests 2- Semester exams (first and second semesters) 3- Laboratory reports

Final exams (theoretical and practical)

d. **General and transferable skills** (other skills related to employability and personal development).

D1- Use of air and land transport solutions for the transport of goods and large loads

D2- Determining the type of air and land transport in the transport of goods and people at low cost

14- **Course Development Plan:** The development plan is carried out through studies submitted through the annual scientific plan for course development.

Course Description : Mapping

This course description provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the student to achieve, proving whether he or she has made the most of the available learning opportunities. It must be linked to the program description.

Northern Technical University / Kirkuk Technical Institute	1- Educational institution
Scientific Department of Civil Technologies / Branch of construction of methods and computer drawing	2- University Department / Center
Mapping (CITC242)	3- Course Name/Code
Second level	4- Programs in which he enters
daily	5- Available Attendance Forms
Course (Semester)	6- Semester / Year
3 hours * 15 weeks = 45 hours	7- Number of Credit Hours (Total)
/ 4/ 2024	8- The history of preparation of this description
9- Course Objectives	
- Introduce the student to the basic principles of cartography.	
- Introduce the student to the basic tools used for mapping.	
- Introduce the student to the symbols used in the maps.	

10- Course Structure

Evaluation method	Method of education	Name of the unit/course or topic	Required Learning Outcomes	Number of Hours	Number of weeks
Semester Exams	Lectures	Mapping	Technical Diploma	3	15 weeks
Written tests	Applications in the studio				
Daily Billboards					
Reports					

11- Infrastructure

Vocabulary - Textbooks - External Resources - Internet	Required readings: - Basic texts - Course Books - Other
Training courses for state departments - participation in the advisory office	Special requirements (e.g. workshops and periodicals)
Exploratory studies for state departments - engineering consultancy	Social services (e.g. guest lectures, vocational training and field studies)

- Introduce the student to the drawing standards and the methods used for drawing.

12- Acceptance	
Scientific Graduate - Average - Physical Fitness	Prerequisites
20	Minimum number of students
30	The largest number of students

21- Learning outcomes and teaching, learning and assessment methods
A. Knowledge and understanding A1- Mastering drawing scales when mapping A2- How to master the details of local and global mapping.

A3- How to put the basic symbols on maps. A4- Designing maps using inking pens.
B - Subject-specific skills B1 – Increase students' ability to understand symbols. B2- How to distinguish between international borders between proven and unproven countries. B3- How to distinguish between the types of dams drawn on the map. B4- Developing the student's ability to distinguish between main roads and railways.
Teaching and learning methods
1- Lecture style. 2- Application in the studio 3- Presentation of scientific films 4- Field visits. 5 - Student projects. .
Evaluation methods
1- Oral exams 2- Semester exams (first semester) 3- Drawing classroom boards 4- Homework 5- Final exams (theoretical and practical).
C- Thinking skills C1 Increase students' ability to speed up the completion of drawings. C2- Increasing students' ability to understand the drawn plans. C3- The student acquires experience in designing maps in a way that keeps pace with development C4- Learn how to prepare plans for main roads and buildings.
Teaching and learning methods
1- Lecture style 2- Application in the studio 3- Presentation of scientific films, 4- Summer training 5- Student projects, 6- Student research
Evaluation methods
1- Oral exams 2- Semester exams (first semester) 3- Drawing boards 4- Final exams (theoretical and practical)
d. General and transferable skills (other skills related to employability and personal development). D1- Preparing the drawing of city and road plans. D2- Speed of completion of drawings
14- Course Development Plan: The development plan is carried out through studies submitted through the annual scientific plan for course development.

Theoretical vocabulary/cartography	Week
Vocabulary details	
Definitions and terminology of cartography	First
Demarcation and inking tools and materials.	Second
Inking methods.	Third
Drilling methods, tools and materials.	Fourth
Ways to change the scale of the drawing.	V
Represents the terrain on maps (contour maps).	Sixth and seventh
Drawing longitudinal and transverse sections.	Eighth
Representation of terrain, elevation points method .	Ninth
Font: types, methods, shape, size, methods,, etc.	X
Map Design	Eleventh
Projections of maps, latitude and longitude, sections of projections by shape.	Twelfth
Sections of projections according to the purpose.	Thirteenth
Aerial photographs, their uses, their characteristics.	Fourteenth
Methods and requirements for the production of maps and plots.	Fifteenth