

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



Academic Program and Course Description Guide

2026

Introduction:

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

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

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

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

Concepts and terminology:

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

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

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

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

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

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

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

Teaching and learning strategies: They are the strategies used by the faculty members to develop students' teaching and learning, and they are plans that are followed to reach the learning goals. They describe all classroom and extra-curricular activities to achieve the learning outcomes of the program.

Academic Program Description Form

University Name: Northern Technical University

Faculty/Institute: Technical Institute / Mosul

Scientific Department: Department of Civil Technologies

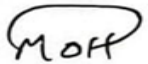
Academic or Professional Program Name: Technical diploma


Final Certificate Name: Diploma in civil technology

Academic System: Courses

Description Preparation Date: 1/9/2024

File Completion Date: 8/7/2025

Signature: 
Head of Department Name:
Asst. Prof. Mohammed H. Yaseen
Date: 29/7/2025

Signature: 
Scientific Associate Name:
Dr. Hassan M. Qassim
Date: 30/7/2025

The file is checked by:

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:

Date: 7/2025
Signature: 



Approval of the Dean

1. Program Vision

Building a technical education system with an academic, applied and practical framework that takes into account scientific progress in the field of construction and building, relying on a comprehensive quality system and performance development, based on meeting the needs of the labor market (government and private sectors) in order to raise the construction and building branch to the level of specialized international scientific institutions.

2. Program Mission

To bring the construction and building specialization in technical education to the highest quality by keeping pace with global developments, responding to the evolution of curricula, and providing graduates with skills and experience that meet the needs of the labor market by adopting the targeted quality of the technical education process.

3. Program Objectives

It aims to prepare qualified technical personnel to carry out various civil works, conduct laboratory and field tests, implement maps and surveys, and calculate quantities and dimensions of civil works projects.

4. Program Accreditation

nothing

5. Other external influences

nothing

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements	10	20	12%	
In Requirements	3	7	4%	
Department Requirements	43	169	84%	
Summer Training				
Other				

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

7. Program Description

Year/Level	Course Code	Course Name	Credit Hours	
			theoretical	practical
First Year/ Building and Construction Branch	NTU100	Human Rights and democracy	2	
	NTU101	English language	2	
	NTU102	computer	1	1
	NTU103	Arabic language	2	
	NTU104	Sports	1	1
	TIMO110	Mathematics 1	2	
	TIMO111	Mechanical workshops		3
	TIMO112	Mathematics 2	2	
	CITB120	Construction materials	2	2
	CITB121	Surveying	2	4
	CITB122	Engineering drawing 1		3
	CITB123	Engineering drawing 2		3
	CITB124	Summer Training		
	CITB125	Engineering mechanics	4	2
	CITB126	Building materials and asphalt	2	2
	CITB127	Building and fabricated building	2	
		NTU200	English language	2
	NTU201	Computer	1	1

Second Year/ Building and Construction Branch	NTU202	Arabic language	2	
	NTU203	Arab bath crime in Iraq	2	
	NTU204	Professional ethics	2	
	CITB221	Concrete technology 1	2	2
	CITB222	Soil mechanics 1	2	2
	CITB223	Advanced surveying	2	3
	CITB224	Concrete technology 2	2	2
	CITB225	Soil mechanics 2	2	2
	CITB226	Project 1		2
	CITB227	Project 2		2
	CITB228	Computer application	2	4
	CITB229	Quantity surveying	2	4
	CITB230	Civil Drawing	2	4
	CITB231	Structural drawing	2	4
	CITB232	Construction technology		3
	CITB233	Construction machine	2	
First Year/ Computer drawing branch	NTU100	Human Rights and democracy	2	
	NTU101	English language	2	
	NTU102	Computer	1	1
	NTU103	Arabic language	2	
	NTU104	Sports	1	1
	TIMO110	Mathematics 1	2	
	TIMO111	Mechanical Workshop		3
	TIMO112	Mathematics 2	2	
	CITC120	Construction Materials	2	2
	CITC121	Surveying	2	4
	CITC122	Engineering Drawing 1		3
	CITC123	Engineering Drawing 2		3
	CITC124	Summer Training		
	CITC125	Engineering Mechanics	4	2
	CITC126	Mechanical Drawing	1	2
	CITC127	Electrical Drawing	1	2
CITC128	Descriptive geometry	0	5	
	NTU200	English language	2	
	NTU201	Computer	1	1
	NTU202	Arabic Language	2	

Second Year/ Computer drawing branch	NTU203	Arab bath crime in Iraq	2	
	NTU204	Professional Ethics	2	
	CITC221	Principles of Architectural Drawing	2	5
	CITC222	Principles of Structural Drawing	2	4
	CITC223	Advanced Architectural Drawing	2	4
	CITC224	Advanced Structural Drawing	2	4
	CITC225	Advanced Presentation	2	4
	CITC226	Project 1		2
	CITC227	Project 2		2
	CITC228	Computer Application	2	4
	CITC229	Quantity Surveying	2	4
	CITC230	Irrigation and Highway Drawing	2	2
	CITC231	Sanitary drawing	1	2

8. Expected learning outcomes of the program

Knowledge

A1: Specialized Technical Knowledge: Demonstrate a comprehensive understanding of construction technology, relevant to building and construction techniques.

A2: Construction Materials and Technologies

Identify traditional and advanced building materials and evaluate their properties.

A3: Technical Standards and Regulations

Understand and apply national and international regulations, codes, and standards in the design and implementation of construction projects.

A4: Construction Technology and Innovation

Familiarity with modern construction technologies such as prefabrication, smart materials, and technical digital tools.

Skills

B1: Site Investigation, Surveying, and Inspection

Conduct laboratory and field tests on materials and soils and analyze the results

B2: Structural Drawings and Analysis:

Prepare and interpret structural and architectural drawings using computers

B3: Project Planning and Management:

Apply scheduling and resource management techniques to efficiently implement projects

B4: Teamwork: Communicate effectively within multiple teams.

Ethics

c1: Professional Ethics: Practicing the profession with integrity, adhering to ethical standards, and serving the community.

c2: Environmental Responsibility: Integrating sustainability principles and sound environmental practices into the planning, design, and implementation phases of projects.

cA3: Continuous Learning: Committing to personal and professional development by keeping up with

developments in the construction field.

C4: Leadership and Teamwork: Demonstrating leadership, collaboration, and effective communication skills within multidisciplinary teams.

9. Teaching and Learning Strategies

The teaching and learning strategies within the program are designed to promote effective interaction and skill development through a variety of methods, including interactive lessons, problem-based learning (PBL), laboratory experiments and field activities, the implementation of design projects and the analysis of case studies, in addition to practical training during the summer period, seminars and group discussions, with the use of simulation programs and specialized engineering applications, leading to the completion of the graduation project, which aims to achieve the integration of acquired knowledge and skills.

10. Evaluation methods

Oral tests, written tests, semester exams, final exams, daily assessment, practical tests, reports, daily assignments

11. Faculty

Faculty Members

Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
Assistant professor	Civil	Construction materials			2	
Lecturer	Civil	Structure			1	
Assistant lecturer	Civil	Construction materials, structure, soil, , architecture			8	1

Professional Development

Mentoring new faculty members

- 1- Participation in courses at higher education and scientific research institutions.
- 2- Participation in courses within the institute.

Professional development of faculty members

- 1- Participating in relevant scientific conferences.
- 2- Conducting individual or joint scientific research (applied or theoretical).
- 3- Participating in discussion panels and scientific seminars.

12. Acceptance Criterion

A- Average (evaluation rate)

2- Scientific and Professional Branch

13. The most important sources of information about the program

- 1- Curriculum Guide
- 2- Ministry of Higher Education Portal

14. Program Development Plan

The program is subject to periodic review to ensure its quality and development, gathering feedback and suggestions from various stakeholders, such as faculty, students, alumni, and industry representatives. This process includes benchmarking programs locally and internationally, analyzing graduate outcomes and employment levels, and conducting ongoing updates to keep pace with technological developments. Within this framework, the department is committed to improving laboratories and practical training environments to enhance the practical aspect of the study and provide a modern educational environment that aligns with the requirements of modern education.

Curriculum Skills Map

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

				Programme Learning Outcomes														
Year/ Level	Course Code	Course Title	Core (C) Title or Option (O)	Knowledge and understanding			Subject-specific skills				Thinking Skills				General and Transferable Skills (or) Other skills relevant to employability and personal development			
				A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	D1	D2	D3	D4
First Year/ Building and Construction Branch		Construction Materials	Specialized			*												
		Engineering Mechanics	Specialized	*														
		Surveying (1)	Specialized												*			
		Concrete Materials	Specialized			*												
		Mathematics	Specialized								*							
		Computer applications	Assistive		*													
		Engineering Drawing	Specialized															*
		Workshops	Specialized													*		
		Technical English Language	general															*
	Human Rights & Democracy	general															*	

Second Year/ Building and Construction Branch		Concrete technology	Specialized				*											
		Construction technologies	Specialized						*									
		Soil Mechanics	Specialized										*					
		Civil Drawing	Specialized					*										
		Surveying (2)	Specialized												*			
		Construction Equipment	Specialized						*									
		Computer Applications (2)	Specialized		*													
		Quantitative Surveying	Specialized				*		*									
		Building & Prefabricated Construction	Specialized															*
		Project	Specialized															*
	general	general																

Programme Learning Outcomes

Year / Level	Course Code	Course Title	Core (C) Title or Option (O)	Knowle dge and underst	Subject-specific skills	Thinking Skills	General and Transferable Skills (or) Other skills relevant to employability and personal development
First Year/ Computer		Engineering Drawing	Specialized				
		Surveying and Cartography	Specialized		*		

drawing branch	Engineering Mechanics	Specialized	*															
	Construction Materials	Specialized			*													
	Descriptive Geometry	Assistive																
	Mathematics	Specialized							*									
	Workshops	Assistive			*		*											
	Technical English Language	Assistive																*
	Human Rights & Democracy	general																*
Second Year/ Computer drawing branch	Architectural Drawing	Specialized																
	Structural Drawing	Specialized	*															
	Highway & Irrigation Drawing	Specialized																
	Mechanical Drawing	Specialized	*															
	Electrical Drawing	Specialized																
	Sanitary Drawing	Specialized																
	Architectural Presentation	Specialized																
	Quantitative Surveying	Specialized																*
	Project	Specialized											*					

	Computer Applications	Specialized									*							
	THE CRIMES OF THE BAATH REGIME IN IRAQ	general																
	Arabic Language	general																
	Computer 1	general																
	English Language	general																
	Human Rights and Democracy	general																

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

Course Description Form

1. Course Name:					
Quantity Surveying					
2. Course Code:					
CITC229					
3. Semester / Year:					
2024/2025					
4. Description Preparation Date:					
15/7/2025					
5. Available Attendance Forms:					
Lectures					
6. Number of Credit Hours (Total) / Number of Units (Total)					
6 Hours / 4 Units					
7. Course administrator's name (mention all, if more than one name)					
Name: Dr. Saeed Khalaf Rejeb					
Email: saeed_kh@ntu.edu.iq					
8. Course Objectives					
Course Objectives		<ol style="list-style-type: none"> 1. Students will be able to estimate the initial costs of any structural engineering project. 2. Students will learn how to calculate the quantity of materials required for each section of the project. 3. Students will learn how to calculate units and analyze these quantities into their initial resources, along with the principles of calculating prices and costs, as well as contracting work. 4. Students will gain knowledge of engineering project management. 5. Students will be able to understand specifications. 			
9. Teaching and Learning Strategies					
Strategy	<ul style="list-style-type: none"> • Explain on the board. • Explain on the visual aids using a data show. 				
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	6	The student should be able to understand the meaning of estimation and identify its types. The student should be able to calculate the quantities of earthwork for foundations of various types of buildings.	Definitions of estimation its purpose, the principle upon which it is based, and the expected benefit of the estimation process. Types of estimation, unit of measurement used for all construction sections and bill of quantities. Calculating the quantity	Lecture/P entation	Explain, discuss, ask questions

			of earthworks for foundations of facilities (buildings) (various types of foundations) and explaining the bill of quantities, including the unified standard guide for these works, their specifications, and price analysis.		
Second	6	The student will learn about the quantity surveying material and its topics, as well as how to calculate structural paragraphs under and above the damp-proof barrier.	Calculate the quantity of structural elements and the damp-proof barrier (squaring, foundation concrete, and cubing), indicating the unified standard guide for these works, their specifications and their respective bill quantities. Calculate the quantity of structural elements above the damp-proof barrier (padding), including damp-proof concrete and construction above the damp-proof barrier (bricks and concrete blocks), indicating the unified standard guide for their dimensions, specifications, and their respective bill of quantities.	Solve questions the board/presentation	Tests, and discussion
Third + Fourth	6 + 6	The student will learn how to calculate the amount of reinforcing steel and the area of the wooden formwork for foundations and connecting beams in buildings.	Calculating the quantity of concrete, reinforcing steel, and wooden formwork for foundations (structural buildings with wall foundations and pile foundations), and providing the unified standard guide for their spans and specifications. Calculating the quantity of concrete, reinforcing steel, and wooden formwork for connecting beams in structural buildings below the paddle level and bridge.	Solve questions the board/presentation	Questions and discussion

			over openings, analyzing prices, and providing the unified standard guide for the spans of these works.		
Fifth + Sixth	6 + 6	The student will learn how to calculate the quantity of concrete, the quantity of reinforcing steel, and the area of the wooden formwork for concrete columns.	Calculating the quantity of concrete, reinforcing steel, and wooden formwork for columns of all types, along with analyzing their prices and providing the unified standard guide and specifications. Calculating the quantity of concrete, reinforcing steel, and wooden formwork for various concrete works and special shapes, such as domes and arches.	Explanatory tests, and questions asked	Tests and discussion
Seventh + Eighth	6 + 6	The student will learn how to calculate the quantity of concrete, the quantity of reinforcing steel, and the area of the wooden formwork for various building shapes such as stairs and slabs.	Calculating the quantity of concrete, reinforcing steel, and wooden formwork for one-way and two-way slabs, analyzing their prices, and citing the unified standard guide for their specifications and bill of quantities. Calculating the quantity of concrete, wooden formwork, and reinforcing steel for various types of stairs, analyzing their prices, and citing the unified standard guide for their height and specifications.	Solve questions the board/presentation	Discussion and questions
Ninth + Tenth	6 + 6	The student will learn how to calculate the quantity of surfacing materials, plastering and whitewashing, as well as scattering and painting and how to calculate the quantity of tiles for floors.	Calculating the quantity of all types of sub-roofing work, including all types of roofing work (asphalt, plaster, and staircase), and providing the unified standard guide for their dimensions and specifications. Calculating the quantity of finishing work (plastering, plastering, a	Solve questions the board/presentation	Discussion and questions

			painting), porcelain tiles analyzing prices, and providing the unified standard guide for their dimensions, specifications and a schedule of quantities.		
Eleventh + Twelfth	6 + 6	The student will learn how to calculate flooring works such as tiles, skirting boards, and marble. The student will also learn how to calculate the amount of electrical and mechanical installations.	Calculating the quantity of flooring, tiling, tile backing, and cladding for facades with marble and gypsum, including the unified standard guide, specifications, and bill of quantities. Calculating the quantity of electrical and mechanical installations including the unified standard guide, specifications, and bill of quantities.	Solve questions the board/presentation	Tests and questions
Thirteenth	6	The student will learn how to calculate the quantity of water and sanitary installations, as well as the quantity of finished construction.	Calculating the quantity of water and sanitary installation work, analyzing and stating the standard guide for their dimensions, specifications and bill of quantities. Calculating the quantity of construction work for prefabricated buildings (walls and ceilings), explaining their specifications, bill of quantities, and standard guide for that.	Solve the questions the board and explain	Tests and questions
Fourteenth	6	The student will learn how to calculate the work of steel structures, analyze their prices, dimensions, and bill of quantities.	Calculating the quantity of work and some sections of steel structures, analyzing their prices, dimensions, and bill of quantities. Contracts, contracting, and contract organization application forms, tenders forms, and instructions for contractors, maintenance periods, advances, and how to calculate them.	Explanation Presentation	Discuss and ask questions

Fifteenth	6	The student will learn about management definitions, interpersonal and organizational relationships, staff responsibilities, project organization, site planning, control, and engineering management of projects. The student will also learn about project scheduling: progress charts, arrow network diagrams, and the critical path.	Definitions in management, interpersonal and organizational relationships, staff responsibilities, project organization, site planning, control, and engineering management of projects. Project scheduling: progress chart, arrow network diagrams, and critical path. Some applications of computer-aided construction quantity calculations.	Explanati Presentati	Discuss and ask question
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11. Course Evaluation

Three monthly exams (40 marks), homework in the form of arithmetic questions (4 marks), daily written and oral tests (6 marks), final exam (50 marks)

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	-
Main references (sources)	<p><u>المصادر:-</u></p> <p>7- التخمين والمواصفات / مدحت فضيل 1977.</p> <p>2- الدار الجديد، تصميم وتخمين، م. احمد شهاب احمد، 1978.</p> <p>3- التخمين والمواصفات، مدحت فضيل فتح الله، الطبعة الرابعة المنقحة، 1985.</p> <p>4- مشروع كتاب المسح الكمي / سلمى فرحان 1986</p> <p>6- حساب الكميات، م. فواز محمد القضاة، جامعة البلقاء التطبيقية، الأردن، الطبعة الأولى، 2006.</p> <p>7- حساب الكميات والمواصفات، م. احمد حسين أبو عودة، ساء الهندسة المدنية (1)، الجزء الأول، جامعة البلقاء التطبيقية/ الهندسة التكنولوجية، الأردن، الطبعة الأولى، 2008.</p>
Recommended books and references (scientific journals, reports...)	-
Electronic References, Websites	<ol style="list-style-type: none"> 1- https://www.procore.com/library/construction-estimating 2- https://nedesestimating.com/how-to-estimate-the-quantity-of-construction-materials/ 3- https://www.rsmeans.com/resources/construction-cost-estimate-guide 4- https://www.remodelingcalculator.org/house-building-calculator/

Course Description Form

1. Course Name	
Principles of Architectural Drawing	
2. Course Code	
CITC221	
3. Semester/Year	
2025-2026	
4. Description Preparation Date	
15/7/2025	
5. Available Forms of Attendance	
Theoretical lectures and practical application	
6. Number of Credit Hours (Total) / Number of Units (Total)	
7 hours / 4 units	
7. Name of the Course Leader (List all names, if there is more than one)	
Name: Zeina Abdulhaq Hammoudi	
Email: zeina_aljarah@ntu.edu.iq	
8. Course Objectives	
Objectives	<ol style="list-style-type: none"> 1. 1- To acquire a comprehensive knowledge of the components of basic architectural drawings, including horizontal plans, sections, facades, and details. 2- To master the production of basic architectural drawings manually and digitally, in accordance with the approved technical and engineering standards. 3- The student should demonstrate a commitment to accuracy, order and professionalism in the completion of architectural drawings.
9. Teaching and Learning Strategies	
List all the teaching and learning strategies that are followed for each course	
Strategy	<ul style="list-style-type: none"> • Theoretical lectures using the projector

- Practical application in the studio using paper or drawing programmes
- Group discussions and class exercises

10. Course structure (**remember all the theoretical and practical vocabulary**)

Week	Hours	Required Learning Outcomes	Module name/theme	Teaching method	Assessment method
1+2	6	<p>-The student will recognize the concept of architectural drawing and types of architectural drawings</p> <p>-The student recognizes the basics of distributing spaces on the ground floor of a residential building</p>	<p>Draw a floor plan of a residential building (Ground Floor)</p> <p>Scale (1:50)</p> <p>Examples of floor plans are required residential houses</p>	<p>Theoretical lecture/ Practical application</p>	<p>Evaluation board</p>
3 + 4	6	<p>The student masters the distribution spaces on the first floor of a</p>	<p>Draw a floor plan of a residential building (first floor and roof).</p>	<p>Theoretical lecture Practical application</p>	<p>Assessment Board+ Test</p>

		first floor of building of a residential building and master draw the ro	Scale (1:50)		
5	6	The student masters the elements of Foundation and their distribution The student draws the relationship between foundations floors and ceilings	draw foundation diagram for your studentwith dimensions. Scale (1:50) Draw sections load-bearing walls and partition scale Drawing (1:20 Illustrated w the foundation	Theoretical lecture Practical application	Evaluation board
6	6	The student counts the holes accurately within the diagram The student designs detail the vertical openings	draw a plan of house with the number of doors and windows, at a scale of (1:100) Draw the facades of the doors and windows, scale Drawing (1:50	Theoretical lecture Practical application	Evaluation board
7	6	Presentation Horizontal plans for a house Residence	Submitting paintings	Submitting paintings	Evaluate Panels

		(floor plan, floor plan. first, roof, floor plan foundation)			
8	6	The student should know syllables and the types The student should be able to distinguish between a section and a plan	draw a section of a residential house The staircase does not pass by a scale Drawing 1:50	Theoretical lecture Practical application	Evaluation board
9+10	6	The student should be able to draw section pass a staircase	draw a section of a block flats passing through staircase at a scale of 1:50 scale	Theoretical lecture Practical application	Evaluation board
11	6	The student recognises the shapes of staircases and ways to represent	Draw types of stairs (diagram, section, interface). Scale	Theoretical lecture Practical application	Assessment board+ Test

		them	drawing (1:20, 1:50)		
12	6	Presentatio of clip boards	Render	Submitting	Evaluate the boards
13+14	6	The student should know Interfaces a their types The student Should distinguish between section and facade	Drawing the facade of residential hou 1:50 Examples of facades a required residential	Theoretical lecture Practical applicatio	Evaluation board
15	6	Presenting a facade fo residential house	Presentation	Presentati	Evaluate the paintings

11. Course evaluation

- 10 marks for daily and oral exams
 - 20 marks for assignments and practical boards
 - 20 marks for mid-term exams
- 50 marks: Final Examination (Theory + Practical)

12. Learning and Teaching Resources

Required textbooks (syllabus books, if any)	1 - Kevin Forseth, Graphics for Architecture, New York, 1980. 2 - Rudolf Herz, Fribe, DrIng., Ernst Neufert Architects' Data, Britain, 1970. 3- John Hancock Callender, Time - Saver Standards Architectural Design Data 4- Atef Al-Suhairi, Building Construction, University of Baghdad, Faculty of Engineering, 1991.
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	-5- Dr Farouk Abbas Haider, Modern Encyclopedia of Building Construction Technology, Part I and Part II
References and Websites	Internet

Course Description Form

1. Course name:	
Computer Applications – Computer Applications	
2. Course Code	
CITC228	
3. Semester / Year	
2025–2026	
4. Description Preparation Date	
15/7/2025	
5. Available Forms of Attendance	
Lectures, Practical Application	
6. Number of Credit Hours (Total) / Number of Units (Total)	
6 hours / 4 units	
7. Name of the module leader (list all names, if there is more than one)	
Name: Zeina Abdulhaq Hammoudi Email: zeina_aljarah@ntu.edu.iq	
8. Course Objectives	
Objectives	<p>1– The student learns the AutoCAD interface and how to customise it.</p> <p>2– The student will be able to use the drawing, editing, writing, and scratching commands.</p> <p>3– The student masters three–dimensional drawing and architectural rendering details.</p> <p>4– The student can convert drawings to perspective and save them as an image.</p>
9. Teaching and Learning Strategies	
List all the teaching and learning strategies that follow for each module	
The strategy	<ul style="list-style-type: none"> - Theoretical explanation using the projector. - Practical applications in the laboratory.

10. Course structure (remember all theoretical and practical vocabulary)					
Week	Hours	Required Learning Outcomes	Module Name / Topic	Method of instruction	Assessment method
1	6	Explain the importance of the Auto cad and get to know the the interface of software	Introduction about AutoCAD	Practical application Setup software interface and drawing basic	Evaluate Works
2	6	The student learns to draw shape Two-dimensional	Drawing menu	Practical application Draw Shape geometric Two-dimensional	Test
3	6	The student learns the Object Snap	Menu Object Snap	Practical application Geometric shapes	Evaluate Works
4	6	The student is proficient in modifying drawings and add texts	List Editing Modify an typing commands Text	Practical application Draw decorations	Homework
5	6	The student can set up a scratch	Hatch menu and Gradient	Practical application Drawing	Evaluate

		post		details Architectur and adding material symbols	the work
6	6	The student can Determine the dimensions	list Dimensions	Practical application Drawing a floor plan of house and specify dimensions	Test
7	6	Controwith specificatio s Drawing (Colour, Line type)	Menu Properties	Practical application Drawing blueprint of a building with modification on the type lineand thickness	Evaluate the work
8	6	The student can create layer (Layers) and print t drawing (Plot)	Layers typography	Drawing plot of a house and illustra layers	Evaluate the work
9+10	6	The student will be al to create drawings three- dimensiona	Principles drawing three- dimensional views a menus (3D view, view ports)	Drawing shapes triangular	Test
11	6	The student draws three- dimensiona surfaces	Drawing Surfaces	Practical application Drawing shapes Surfaces	Evaluate the work

12	6	The student draws triangular shapes using drawing commands (Solids)	List (Solids)	Practical application Drawing shapes geometric Three-dimensional	Homework
13	6	Manage perform Mergers Slice, Cut, and Delete (Slice, Union, Subtract)	Command(Slice, Union, Subtract)	Draw Shape triangles and apply the commands Combine, Slice and delete commands	Test
14+15	6	The student simulates the first scene and memorises as a picture	Render (Render). perspective area storage	Practical application Drawing building three-dimensional building with the addition of materials and shadow (Render) and turning into a Perspective and convert to image	Evaluate the work

11. Course evaluation

Distribute marks out of 100 according to the tasks assigned to the student such as daily preparation, daily oral exams, monthly or written exams, reports... Etc.

10 marks: Daily and oral assessments

20 marks: Daily exams

20 marks: Monthly exam

50 marks: Final Examination (Theory + Practical)

12. Learning and Teaching Resources

**Electronic
references
and
websites**

<https://www.autodesk.com>

<https://www.cadtutor.net>

1. Course Title:	
Construction materials	
2. Course Code:	
CITB120	
3. Semester / Year:	
2025-2026	
4. Date of Description Preparation:	
14-7-2025	
5. Available Attendance Modes:	
Lectures and Practical Applications	
6. Total Credit Hours / Total Units:	
Total Hours: 4 / Total Units: (3)	
7. Course Coordinator Name (List all names if more than one):	
Name: Leena Jaffer sedeeq Email: leena.j.sedeeq@ntu.edu.iq	
8. Objectives of the Course:	
Objectives	<ul style="list-style-type: none"> • The student will learn the properties and manufacturing of a range of construction materials and their on-site installation. • The student will be able to conduct tests and compare the results with standard specifications. • The student will be able to identify the appropriate construction materials for each section and their properties.
9. Teaching and Learning Strategies List all the teaching and learning strategies applied for each course.	
Strategy	<ul style="list-style-type: none"> • Delivering lectures using projectors and computers. • Using whiteboards/chalkboards to effectively convey information. • Practical sessions and demonstrations of subject-related equipment. • Field visits to learn everything related to construction materials and the necessary tests.

10. Course Structure (List all theoretical and practical topics)					
Week	Hours	Expected Learning Outcomes	Unit/Topic Name	Teaching Method	Assessment
First	4	The student should be able to understand the meaning of construction materials science and know the standard specifications.	General Description Standard Specifications Definition of Bricks, Their Properties Manufacturing Methods	Lecture, Presentation	Exp Dis Que
Second	4	The student will learn about brick making and construction methods.	Types of bricks Laboratory tests Construction methods	Lectures, Presentation, Practical Work	Exp Dis Pr Se Que
Third + Fourth + Fifth	4+4+4	The student will learn about the types of building blocks, their types, properties, and methods of manufacturing them.	Main Title Three: Building Blocks: Types and Properties Manufacturing Methods Laboratory Tests Lightweight Blocks Thermstone: Its Manufacture Laboratory Tests	Lectures, Presentation, Practical Work	Exp Dis Pr Se Que Cor
Sixth	4	The student will learn about the uses of stones in construction and their properties.	Main Title: Stonework, Its Uses Classification Engineering Properties Types Laboratory Tests	Lectures, Presentation, Practical Work	Q pr le exp dis pr se que con
Seventh+ Eighth	4+4	The student will learn about the types of binding materials and methods of manufacturing them.	Main Title: Binding Materials, Cement Raw Materials Manufacturing Methods	Presentation, Lectures	Exp Dis Que
Ninth	4	The student will learn about the properties, uses and types of cement.	Main Title: Cement Main Title: Cement's Main Types Types' Characteristics Uses	Lectures, Presentation, Conducting Experiments	Exp Dis Pr
Tenth + Eleventh Twelfth+ Thirteenth	4+4+4+4	The student will learn about cement products, their manufacture and benefits.	Main Title: Cement Products Concrete Pipes Manufacturing, Benefits Concrete Slabs Manufacturing, Uses Laboratory Tests	Lecture, Presentation	Exp Dis Que

Fourteenth	4	The student learns about the types of steel.	Main Title: Structural Steel Reinforcing Steel Shalman Tensile Testing of Steel	Lectures, Presentation, Conducting Experiments	Exp Dis Pr S Que Cor
Fifteenth	4	The student will learn about the features and characteristics of environmentally friendly buildings. The student will learn about sustainable construction materials. The student will learn about the advantages and disadvantages of residential complexes.	Main Title: Environmentally Friendly Buildings: Its Features Characteristics Sustainable Construction Materials: Their Properties Tests Characteristics of Residential Complexes	Lecture, Presentation	Exp Dis Que

11. Course Evaluation

Four monthly exams (60 marks), homework assignments consisting of calculation questions (20 marks) preparation reports related to the topics covered (10 marks), daily oral quizzes (10 marks)

12. Learning and Teaching Resources

Required Textbooks (Course textbooks, if available)	<p>Jo</p> <p>4 .Minke, Gernot. 2000. Earth Construction Handbook: Building Material Earth in Modern Architecture. South United Kingdom: WIT Press.</p> <p>5 .Kapoor, Raval , Pitroda ,Vallabh Vidyanagar , Gujara .(04/Apr2022).</p> <p>AN EXPERIMENTAL STUDY ON LEGO – INSP RED BLOCK International Research Journal of Engineering Technology (IRJET) Volume: 09, P 892.</p>
References and Websites	https://www.hnjournal.net/ar/4-4-18/

13. Course Name : Advanced Surveying	
14. Course Code : CITB223:	
15. Semester : 2024/ 2025	
16. Academic Recipe Preparation Date :24/7/2025	
17. Available Form OF Attendance : In- Person Lectures	
18. Number OF Credit Hours /Number Of Unite : 5 Hours	
19. Course Supervisor Name : Salim .A.Khalid	
:E- mail : salim.a.k@ntu.edu.iq	
20. Course Objectives	
The Objective	<p>1- Enable the Student to install, operate and take reading of various Surveying devices, such as the theodolites, Total station, and leveling devices.</p> <p>2- Enable the student to raise and lower engineering drawings of building projects, and horizontal and vertical curves.</p> <p>3- Enable the student to calculate the volumes and quantities of excavation and burial earthworks for engineering projects.</p>

21. Teaching and learning strategies					
Strategies		Using explanation on the board displaying slides on the data show device, practical applications on the site, conducting daily and semester exams, and preparing questions through homework, in addition to preparing reports on practical exams.			
22. Course Structure (all practical and theoretical courses)					
The week	hours	Required Learning Outcomes	Name of Unit/Or Topic	Teaching method	Assessment Method
The first is theoretical	2	Learn how to calculate the height of the cut and burial for longitudinal and transverse sections of roads and engineering projects, such as excavations and others.	Calculating levels and excavation and backfill heights for upgrading plans and construction projects.	Lecture and drawing plans for the road or project	Explain how to read calculation plan in the form rules and tables
The second is theoretical	2	Finding the volumes of soil quantities for longitudinal and transverse sections using the mathematical laws of trapezoids, rectangles, and triangles	Calculating levels and excavation and backfill heights for road plans and construction projects.	Solve questions on the board/presentation	Exercises, questions and homework
The third is practical	3	Learn how to set up the theodolite, zero, aim, and read horizontal angles.	Installing the theodolite, aiming at targets, and reading horizontal angles	Preparing reports and gaining skills in the field of work	Through skills assessment and reporting
The fourth is practical	3	Learn about the types of polygons and how to measure and correct them.	Polygons: Types of polygons, their purpose is to measure the internal	Explanation with drawings and problem solving	Solve homework and questions from sources and discuss

			angles of a closed polygon and the method of correcting the angles		
The fifth is theoretical	2	Learn how to lift a polygon, measure angles, and indent it.	Measuring the lengths of the polygon and filling the polygon	Explanation with questions and diagrams	Solve exercises and discuss
The fifth is practical	3	Raising a building inside a polygon with a drawing of its plan	Raising a building inside a closed polygon with corrections and drawing procedures	On-site practical training	Skills assessment, report writing, drawing a diagram using AutoCAD
The sixth is theoretical +practical	2+3	Learn how to calculate the horizontal and vertical components of the sides of a closed polygon and how to correct them.	Calculating the horizontal and vertical components of the sides of a closed polygon and methods for correcting them	Explanation with exercises and solving examples	Solve questions
The seventh is theoretical	2	Learn how to calculate the horizontal and vertical components of the sides of an open polygon and how to correct them.	Calculating the horizontal and vertical components of the sides of an open polygon and methods	Explanation with exercises and solving examples	Solve questions and take a test

			for correcting it		
The eighth is theoretical	2	Conduct a semester selection for the above lectures.			Evaluation of answers
The eighth is practical	3	Learn how to read vertical angles using a theodolite.	Measuring vertical angles	Do exercises to measure vertical angles above and below the horizon.	Do site exercises on geometric landmarks
The ninth is theoretical	2	Learn how to find the height of a target from a reachable point and from an unreachable point.	Finding the height of a building using a theodolite	Explanation and solution of examples supported by diagrams	Doing homework
The ninth is practical	3	Learn how to find the height of a building from an inaccessible point, as well as how to find the height of a building from an accessible point using a theodolite.	Finding the height of a building using a theodolite	Practical exercise	Report with skills assessment
The tenth is theoretical	2	Learn about the types of horizontal road curves and their calculation methods.	Horizontal curves: types and methods of calculating them	Explanation and illustrative figures, solving examples	Solve examples with homework
The tenth is practical	3	Simple circular curve projection using a tape measure	Simple circular curve projection	Practical exercise	Skills assessment with report
The eleventh is theoretical	2	Learn how to calculate complex and inverse curves.	Compound circular curves	Explanation with examples and illustrative diagrams	Work examples, discussion and homework
The eleventh is practical	3	Projecting a simple circular curve using a theodolite and a tape measure	Circular curved projection using the theodolite	Practical exercise	With report with skills assessment
Twelfth	2	Learn how to study	vertical	Explanation	Solve

h theore tical		convex and concave vertical curves.	curves	n, clarificatio n and solution of questions	questions and discuss with homework
Twelfth h practic al	3	Install, operate and take readings of the total station	Total station instrument	Explanatio n, clarificatio n and solution of questions	Solve questions and discuss with homework
Thirteenth theore tical	2	Conducting a theoretical semester exam			
thirteenth practic al	3	Learn how to enter coordinates and the height of the marker for point (B.M)	Entering data and reading coordinate s for the total station device	Practical exercise	Evaluation work with report
fourteenth	3+2	Measuring distances and projecting coordinates for the total station device	Measuring distances and projecting coordinate s	Practical exercise	Evaluation work with report

23. Course Evaluation

Two semester exams (25 marks), homework in the form of arithmetic questions (5 marks), preparing reports on the practical tests that were explained (10 marks), practical tests (10 marks), the effort is 50

24. Learning and teaching resources

Required textbooks (curriculum books, available)

- 1- Surveying Using the Integrated Station for Construction Projects / Authored by Dr. Ali Abdul Amir Al-Ramahi.
- 2- AASHTO Book
- 3- Construction Surveying, translated

	by Dr. Abdul Sattar Abdul Karim and Labib Nasef Salloum
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Course Description Form

25.	Course Name : drawing roads	
26.	Course Code: CIT230	
27.	Semester : 2024/ 2025	
28.	Academic Recipe Preparation Date :26/7/2025	
29.	Available Form OF Attendance : In- Person Lectures	
30.	Number OF Credit Hours /Number Of Unite : 4 Hours	
31.	Course Supervisor Name : Salim .A.Khalid	
	:E- mail : salim.a.k@ntu.edu.iq	
32.	Course Objectives	
	The Objective	<ol style="list-style-type: none"> 1- The student will be able to read and draw the components of rigid and flexible roads using drawing on the board. 2- The student can read and draw open irrigation canals. 3- The student can draw road components using a computer. 4- The student will be able to draw various types of horizontal and vertical curves, retaining walls, and irrigation intersections at several levels using drawing on the board and the AutoCAD program.
33.	Teaching and learning strategies	
	Strategies	Using explanation, drawing on the board, slide show (PowerPoint), drawing on the board, AutoCAD program, submitting drawing boards during the lecture, as well as assigning the student to draw boards as homework, the system of daily and semester exams, and home exercises for questions and examples.

34. Course Structure (all practical and theoretical courses)					
The week	h o u r s	Required Learning Outcomes	Name of Unit/Or Topic	Teaching method	Assessment Method
first	4	Learn the symbols and terms used in road drawing.	Technical terms and symbols used in drawing roads and transportation	Explanation, clarification and discussion	Drawing on the board during the lesson. Evaluation on the board, speed and skill.
second	4	Cross section drawing of a flexible mesh road including road components, layer thickness and side slope of the road	Cross section drawing of flexible road with all details	Explain and draw on the board and use slide show	Drawing on the board during the lesson, training the student on the correct drawing method, and presenting the board in addition to the homework.
Third	4	Drawing of a cross-section of a solid road including road components, layer thickness and side slope of the road	Solid road cross section drawing with all details	Explain and draw on the board and use slide show	Drawing on the board during the lesson, training the student on the correct drawing method, and presenting the board in addition to the homework.
Fourth and fifth	4	Learn how to draw a longitudinal section of a road, drawing the	Draw a longitudinal section of a road	Explaining the method of drawing and using	Convert levels and stations into

		construction line and indicating the cutting and burial areas.	containing cutting and burial areas, station numbers, and levels.	illustrations	longitudinal section diagrams
sixth	4	Use AutoCAD to draw a cross-section of the flexible road with details and markings on the plan according to engineering specifications.	Using AutoCAD to draw a cross section of a road	Explanation of using drawing tools	Computer exercise and skills assessment
seventh	4	Learn about the types of horizontal curves, methods of drawing them, their components, and methods of calculating them.	Circular horizontal curves	Explain with the help of pictures, diagrams, and drawing a curve on the board.	Draw a simple circular curve on the board, using the calculator and the effect on the components of the curve, and specifying the starting and ending points and the point of intersection of the tangents.
eighth	4	First semester exam			
Ninth and tenth	4	Learn how to draw concave and convex vertical curves, perform calculations, and know the components of curves.	vertical curves	Explanation and method of drawing on the board and using slides and pictures	Draw a concave and convex vertical curve from the work of computer and the effect on the

					components. Provide boards with homework.
eleventh	4	Learn about the types of retaining walls, their uses, components, and reinforcement methods.	Retaining walls, their components, types, and distribution of iron reinforcement	Explanation with the help of pictures and diagrams	Drawing of a cantilever retaining wall with details of the reinforcement steel and components of the wall, submitting a board with homework.
Twelfth	4	Learn how to draw a longitudinal and cross-sectional view of a bridge with the distribution of reinforcing steel.	Drawing longitudinal and cross-sectional drawings of box arches	Explanation on the blackboard with the help of pictures and slides	Box bridge drawing with details
Thirteenth	4	Second semester exam			
fourteenth	4	Learn how to draw open, lined and unlined irrigation canals.	drawing open irrigation channels	Explanation with diagrams and pictures	Irrigation canal drawing with details
fifteenth	4	Testing using AutoCAD drawing			
35. Course Evaluation					
Midterm exam (30 marks) Boards, attendance and homework (20 marks) The effort is 50					
36. Learning and teaching resources					
Required textbooks (curriculum books, available)	4- Road Irrigation by Hassan Muhammad Ali Dada - Koker Dakhil Al-Asadi 5- AASHTO Book				

