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

2025

Introduction:

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

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

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

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

Concepts and terminology:

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

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

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

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

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

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

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

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

Academic Program Description Form

University Name: Northern Technical University

Faculty/Institute: **Polytechnic College - 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: 1/9/2025

File Completion Date: 1/9/2025

Signature: MOH

Head of Department Name:

Asst. Proof. Mohammed .H. Yaseen

Date: 1/9/2025

Signature: M Hass

Scientific Associate Name: Dr. Hassan M. Qassim

Date: 1/9/2025

The file is checked by:

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:

Date: 1/9/2025

Signature:

Approval of the Dean

Date: 1/9/2025

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	
Second Year/ Building and Construction Branch	NTU200	English language	2	
	NTU201	Computer	1	1
	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
Second Year/ Computer drawing branch	NTU200	English language	2	
	NTU201	Computer	1	1
	NTU202	Arabic Language	2	
	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 understa		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														*	

econd 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:	
2025/2026	
4. Description Preparation Date:	
15/6/2025	
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	**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	• **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 earthwor for foundations of various types of buildings.	Definitions of estimatio its purpose, the principl upon which it is based, and the expected benefi of the estimation proces Types of estimation, uni of measurement used fo all construction sections and bill of quantities. Calculating the quantit	Lecture/P entation	Explain, discuss, ask questions

			of earthworks for foundations of facilities (buildings) (various typ of foundations) and explaining the bill of quantities, including the unified standard guide f 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 o structural elements und the damp-proof barrier (squaring, foundation concrete, and cubing), indicating the unified standard guide for these works, their specificatio and their respective bill quantities. Calculate the quantity o structural elements abo the damp-proof barrier (paddling), including damp-proof concrete an construction above the damp-proof barrier (bricks and concrete blocks), indicating the unified standard guide f their dimensions, specifications, and their respective bill of quantities.	Solve questions the board/pre ntation	Tests, and discussion
Third + Fourth	6 + 6	The student will learn how to calculate the amount of reinforcing steel and the area of th wooden formwork for foundations and connecting beams in buildings.	Calculating the quantity of concrete, reinforcing steel, and wooden formwork for foundatio (structural buildings wi wall foundations and pi foundations), and providing the unified standard guide for their spans and specifications Calculating the quantity of concrete, reinforcing steel, and wooden formwork for connectin beams in structural buildings below the paddle level and bridges	Solve questions the board/pre ntation	Questions an discussion

			over openings, analyzin prices, and providing th unified standard guide f the spans of these works		
Fifth + Sixth	6 + 6	The student will learn how to calculate the quantity of concrete, th quantity of reinforcing steel, and the area of th wooden formwork for concrete columns.	Calculating the quantity of concrete, reinforcing steel, and wooden formwork for columns o all types, along with analyzing their prices an 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.	Explanati tests, and questions asked	Tests and discussion
Seventh + Eighth	6 + 6	The student will learn how to calculate the quantity of concrete, th quantity of reinforcing steel, and the area of th wooden formwork for various building shape 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, a citing the unified standa 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, a citing the unified standa guide for their height an specifications.	Solve questions the board/pre ntation	Discussion a questions
Ninth + Tenth	6 + 6	The student will learn how to calculate the quantity of surfacing materials, plastering an whitewashing, as well a scattering and painting and how to calculate th quantity of tiles for floors.	Calculating the quantity of all types of sub-roofin work, including all type of roofing work (asphal plaster, and staircase), and providing the unifie standard guide for their dimensions and specifications. Calculating the quantity of finishing work (plaste plastering, plastering, a	Solve questions the board/pre ntation	Discussion a questions

			painting), porcelain tile analyzing prices, and providing the unified standard guide for thei dimensions, specificatio and a schedule of quantities.		
Eleventh + Twelfth	6 + 6	The student will learn how to calculate floori works such as tiles, skirting boards, and marble. The student w also learn how to calculate the amount o electrical and mechani installations.	Calculating the quantit of flooring, tiling, tile backing, and cladding f facades with marble an gypsum, including the unified standard guide, specifications, and bill o quantities. Calculating the quantit of electrical and mechanical installation including the unified standard guide, specifications, and bill o quantities.	Solve questions the board/pre ntation	Tests and questions
Thirteen	6	The student will learn how to calculate the quantity of water and sanitary installations, a well as the quantity of finished construction.	Calculating the qu antit of water and sanitary installation work, analyzing and stating th standard guide for thei dimensions, specificatio and bill of quantities. Calculating the quantit of construction work fo prefabricated buildings (walls and ceilings), explaining their specifications, bill of quantities, and standar guide for that.	Solve the questions the board and explai	Tests and questions
Fourteen h	6	The student will learn how to calculate the w of steel structures, analyze their prices, dimensions, and bill of quantities.	Calculating the quantit of work and some sectio of steel structures, analyzing their prices, dimensions, and bill of quantities. Contracts, contracting, and contract organizati application forms, tend forms, and instructions for contractors, maintenance periods, advances, and how to calculate them.	Explanati Presentati	Discuss and ask questio

Fifteenth	6	The student will learn about management definitions, interperson and organizational relationships, staff responsibilities, projec organization, site planning, control, and engineering manageme of projects. The studen 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 managemen 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

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)	المصادر: - 7- التخمين والمواصفات / مدحت فضيل 1977. 2- الدار الجديد، تصميم وتخمين، م. احمد شهاب احمد، 1978. 3- التخمين والمواصفات، مدحت فضيل فتح الله، الطبعة الرابعة المنقحة، 1985. 4- مشروع كتاب المسح الكمي / سلمى فرحان 1986 6- حساب الكميات، م. فواز محمد القضاة، جامعة البلقاء التطبيقية، الأردن، الطبعة الأولى، 2006. 7- حساب الكميات والمواصفات، م. احمد حسين أبو عودة، سل الهندسة المدنية (1)، الجزء الأول، جامعة البلقاء التطبيقية/ الهندسة التكنلوجية، الأردن، الطبعة الأولى، 2008.
Recommended books and references (scientific journals, reports…)	-
Electronic References, Websites	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	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	• Theoretical lectures using the projector • Practical application in the studio using

	paper or drawing programs • Group discussions and class exercises

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

Week	Hours	Requ Learn Outco	Module name/theme	Teaching method	Assessment method
1+2	6	–The student will recognize The concept architectu drawing and types architectu drawings -The stud recognize the basics of distributin spaces on the ground flo of a residentia building	Draw a floor pl of a residential building (Ground Floor) Scale (1:50) Examples of flo plans are required residential houses	Theoretical lecture/ Practical application	**Evaluation board**
3 + 4	6	The stude mastersth distributic of	Draw a floor plan of a residential building	Theoretical lecture Practical	**Assessment**

		spaces on the first floor of a first floor a building of a residentia building a master draw the roof	(first floor and roof). Scale (1:50)	application	**Board+ Test**
5	6	The stude masters th elements Foundati and their distributic The stude draws the relationsh between foun dations floors and ceilings	draw foundation diagram for your studentwith dimensions. Scale (1:50) Draw sections load-bearing walls and partitio scale Drawing (1:20) Illustrated w the foundation	Theoretical lecture Practical application	**Evaluation board**
6	6	The stude counts th holes accurately within the diagram The stude designs detail the vertical openings	draw a plan of house with the numb of doors and windows, at a scale of (1:100) Draw the facad of the doors and windows, scale Drawing (1:50)	Theoretical lecture Practical application	**Evaluation board**
7	6	Presentati Horizontal	Submitting paintings	Submitting paintings	**Evaluate**

		plans for a house Residence (floor plan floor plan. first, roof, floor plan foundatio			**Panels**
8	6	The stude should know syllables and th types The stude should able to distinguish between section a a plan	draw a section of a residential hou The staircase does not pass by a scale Drawing 1:50	Theoretical lecture Practical application	**Evaluation board**
9+10	6	The stude should be be able to draw section pass a staircase	draw a section of a block of fla passing through staircase at a scale of 1:50 scale	Theoretical lecture Practical application	**Evaluation board**

11	6	Thestuder recognise the shapes of staircases and ways to represent them	Draw types of stairs (diagram, section, interface). Scale of drawi (1:20, 1:50)	Theoretical lecture Practical application	**Assessment board+ Test**
12	6	Presentat of clip boar	Render	Submitting	**Evaluate the boards**
13+14	6	The stude should know Interfaces and their type The stude Should distinguis between section ar facade	Drawing the facade of residential hou 1:50 Examples of facades required residential	Theoretical lecture Practical application	**Evaluation board**
15	6	Presentin a facade a residen house	Presentation	Presentatic	**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, Drlng., Ernst Neufert Architects' Data, Britain, 1970. 3- John Hancock Callender, Time - Saver Standards I Architectural Design Data 4- Atef Al-Suhairi, Building Construction, University of Baghdad, Faculty of Engineering, 1991. -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	
15/6/2025	
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	1– The student learns the AutoCAD interface and how customise it. 2– The student will be able to use the drawing, editi writing, and scratching commands. 3– The student masters three–dimensional drawing a architectural rendering details. 4– The student can convert drawings to perspective a save them as an image.
9. Teaching and Learning Strategies **List all the teaching and learning strategies that follow for each module**	
The strategy	- 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 t importance of of the Auto cad and get to know the the interfa of t software	Introduction about AutoCAD	Practical application Setup software interface and drawin basic	**Evaluate Works**
2	6	Th student learns to draw shap Two-dimension	Drawing men	Practical application Draw Shape geometric Two-dimensiona	**Test**
3	6	Th student learns the Object Sna	Menu Object Snap	Practical application Geometric shapes	**Evaluate Works**
4	6	The stude is proficie in modifyin drawings and add texts	List Editing Modify an typing commands Text	Practical application Draw decorations	**Homework**
5	6	The studen can set up a scratchi	Hatch menu and Gradient	Practical application Drawing	**Evaluate**

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

12	6	Thestuden draws triangular shapes using drawing commands (Solids)	List (Solids)	Practical application Drawing shapes geometric Three-dimensiona	**Homewor k**
13	6	Manage perform Mergers Slice, Cut, and Delete (Slice, Union, Subtract)	Command(Sli , Union, Subtract)	Draw Shape triangles and apply the commands Combine, Slice and del commands	**Test**
14+15	6	The stude simulates the fi scene and memorises as a picture	Render (Render). perspectivea storage	Practical application Drawing building three-dimensiona building w the additi 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:	
14-6-2025	
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	• The student will learn the properties and manufacturing of a range of construction materials and their on-site installation methods. • 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 construction section and their properties to be
9. Teaching and Learning Strategies **List all the teaching and learning strategies applied for each course.**	
Strategy	• 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	Ass M
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 Co
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 sc que co
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 Se Que Co
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) pre aratio reports related to the topics covered (10 marks), daily oral quizzes (10 marks)	
12. Learning and Teaching Resources	
Required Textbooks (Course textbooks, if available)	**Jo** **4 .Minke, Gernot. 2000. Earth Construction Handbook: Building Material Earth in Modern Architecture. Southa United Kingdom: WIT Press.** **5 .Kapoor, Raval , Pitroda ,Vallabh Vidyanagar , Gujara .(04/Apr2022).** **AN EXPERIMENTAL STUDY ON LEGO – INSPIRED BLOCK International Research Journal of Engineering Technology (IRJET) Volume: 09, P 892.**
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	**1- Enable the Student to install, opera and take reading of variouse Surveyi device , such as the theodilators, T total station ,and leveling devices.** **2- Enable the student to raise and low engineering drawings of building projects, and horizontal and vertic curves.** **3- Enable the student to calculate t volumes and quantities of excavati and burial earthworks for engineeri projects.**

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 a calculation plan in the form of 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 forth 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 tenthis 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 tenthis 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
Twelft	2	Learn how to study	vertical	Explanatio	Solve

h theoretical		convex and concave vertical curves.	curves	n, clarification and solution of questions	questions and discuss with homework
Twelfth practical	3	Install, operate and take readings of the total station	Total ststion instrument	Explanation, clarification and solution of questions	Solve questions and discuss with homework
Thirteenth theoretical	2	Conducting a theoretical semester exam			
thirteenth practical	3	Learn how to enter coordinates and the height of the marker for point (B.M)	Entering data and reading coordinates 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 coordinates	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

Course Description Form

25. Course Name : drawing roads	
26. Course Code :**CIT230**	
27. Semester : 2025/ 2026	
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	**1- The student will be able to read and draw the components 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	hours	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 calculators 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 textbo (curriculum books, available)	4- Road Irrigation by Hassan Muhammad Ali Dada - Koker Dakhil Al-Asadi 5- AASHTO Book

	6- Preparation Workbook - Louay Ali Taha