Ministry of Higher Education and Scientific Research
Scientific supervision and evaluation device
Department of Quality Assurance and Academic Accreditation

Academic program description form for colleges and institutes

For the year ٢٠٢٣ - ٢٠٢٤

University: Al-Furat Al-Awsat Technical University
College/Institute: Samawa Technical Institute
Scientific Department: Department of Surveying Technologies
File filing date: ١١ / ٢ / ٢٠٢٤

the signature :
Name of Department Head: Lec. Qasim Jubeir Salman
Date: ١١ / ٢ / ٢٠٢٤

Check the file before
Division of Quality Assurance and University Performance
Name of the Director of the Quality Assurance and University Performance Division: A.T. Ahmed Abdel Mohsen

the date: 12/6/2024

the signature

Authentication of the Dean
Prof. Sabah Muhammad Malakat

١. Program Vision

Professional surveyors...excellent

٢. Program Mission

. Working diligently and diligently to achieve the concept of technical education in the world and striving to achieve and clarify the scientific excellence of the department. The mission is focused on the principle of teaching and learning and graduating national technical cadres with a high level of education and training who are able to absorb modern technologies and support the process of global technical development of modern surveying software and devices in a manner appropriate Effective with the labor market and community needs in qualification and training

٣. Program Objectives

Preparing technical cadres who work on modern surveying equipment and are qualified to carry out various land surveying and photogrammetry work, work on the Geographic Information System (GIS) and the Global Geographical Positioning System (GPS), and experience in preparing general survey maps according to the Iraqi and international networking (UTM) (Universal Transverse Mercator). To enter strongly into the labor market

٤. Program Accreditation

Does the program have program accreditation? From which side?
nothing

٥. Other external influences

Is there a sponsor for the program?
nothing

٦. Program Structure				
Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements	/	/	/	/
College Requirements	/	/	/	/
Department Requirements	١٥	٦٤	٢٣٪	The requirements are basic and optional
Summer Training	/	/	/	/
Other	/	/	/	/

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

٧. Program Description				
Year/Level	Course Code	Course Name	Credit Hours	
			theoretical	practical
First year	nothing	Remote Sensing	٢	
	nothing	English language ١	١	
	nothing	Aerial photogrammetry	٢	٣
	nothing	Quantity Surveying	٢	
	nothing	Computer١	٢	٢
	nothing	Surveying ١	٤	٦

	nothing	Science of the Earth's surface	١	
	nothing	Mathematics and spherical triangles Science of the Earth's surface	٢	
Second year	nothing	Surveying ٢	٢	٦
	nothing	Digital photogrammetry	٢	٢
	nothing	Engineering and cadastral surveying	٢	٣
	nothing	English language ٢	١	
	nothing	Mapping techniques	٢	٣
	nothing	computer technologies		٣
	nothing	We include geographic information and ground control techniques	١	٣

٨. Expected learning outcomes of the program	
Knowledge	
١- Identify the surveying devices and the operation of each of them. ٢-Learn about using the simplest and most accurate methods in surveying work.	Become able to engage in engineering projects and work within engineering standards.
Skills	
١ - Operating and working on surveying equipment	Be able to use surveying devices.
٢- Using modern surveying	Be able to work with a computer and use the latest engineering

equipment and programs.	technologies.
Ethics	
Theoretical lectures (written)	He can pass the exam.
Practical lectures (practical training)	Application of what he studied in theoretical lectures.

٩. Teaching and Learning Strategies

١ – Theoretical lectures.
٢- Practical lectures (training).
٣- Videos using the data viewer.
٤- Scientific visits

١٠. Evaluation methods

١ - Continuous tests.
٢- Pre and post questions.
٣- Semester and final exams.

١١. Faculty

Faculty Members

Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
Mr.	Civil engineering/building				*	

	and construction					
Assistant Professor	Civil engineering/building and construction				*	
Teacher	Civil engineering/building and construction				*	
assistant teacher	Civil engineering/building and construction				*	

Professional Development

Mentoring new faculty members

The head of the department received the new recruits, welcomed them, and directed them to their places of work in the department, according to the assignments assigned to them. To perform their work in the best way to continue the scientific and educational process in a way that serves the interest of the department and the institution in general.

Professional development of faculty members

١- Teamwork within the group effectively and actively.
٢- Leadership and the ability to direct and motivate others.
٣-Manage time effectively and set priorities with the ability to work on regular schedules.
٤- Independence at work.

١٢. Acceptance Criterion

١ - Iraqi nationality.
٢- He holds an Iraqi preparatory school certificate.
٣- The student must be born in ١٩٩٤ onwards. Successful in the medical examination according to special conditions.
٤- He must be devoted to study, and it is not permissible to combine work and study in colleges

and morning institutes. If he continues his studies, he is required to obtain a study leave.

١٣. The most important sources of information about the program

١ – Methodical books
٢- Lectures.
٣- The Internet

١٤. Program Development Plan

١ – Holding scientific seminars.
٢- Holding internal courses.
٣- Participation in external courses.
٤- Practical trips for projects.

Program Skills Outline															
				Required program Learning outcomes											
Year/Level	Course Code	Course Name	Basic or optional	Knowledge				Skills				Ethics			
				A١	A٢	A٣	A٤	B١	B٢	B٣	B٤	C١	C٢	C٣	C٤
The First		Area ١	Basic	*	*	*		*	*	*		*	*	*	
		Remote Sensing	optional	*	*	*		*	*	*		*	*	*	
		English language ١	optional	*				*	*			*			
		Aerial photogrammetry	Basic	*	*	*		*	*	*		*	*	*	
		Quantity surveying	Basic	*	*	*	*	*	*	*	*	*	*	*	*
		Computers ١	Basic	*	*	*		*	*	*		*	*		
		Mathematics and spherical triangles	Basic	*	*	*	*	*	*	*		*	*	*	
		Science of the earth's surface	Basic	*	*	*	*	*	*	*	*	*	*	*	*
The second		Area ٢	Basic	*	*	*		*	*	*		*	*	*	*
		Digital photogrammetry ry	Basic	*	*	*	*	*	*	*	*	*	*	*	
		English language ٢	optional	*				*	*			*		*	
		Engineering and cadastral surveying	Basic	*	*	*		*	*	*		*	*		*

		Mapping techniques	Basic	*	*	*		*	*	*	*	*	*	*	*
		Surveying computer applications	Basic	*	*			*	*	*		*	*	*	*
		We include geographic information and ground control techniques	Basic	*	*			*	*	*	*	*	*	*	

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

Course Description Form

١. Course Name:	
Geomorphology	
٢. Course Code:	
٣. Semester / Year:	
First Semester and Second Semester / ٢٠٢٣-٢٠٢٤	
٤. Description Preparation Date:	
٣/٣/٢٠٢٤	
٥. Available Attendance Forms:	
Classroom	
٦. Number of Credit Hours (Total) / Number of Units (Total)	
١/١	
٧. Course administrator's name (mention all, if more than one name)	
Name: Assistant Professor Dr. Moslih Amer Salih Email: moslih.a.salih@atu.edu.iq	
٨. Course Objectives	
Course Objectives	Recognizing the geomorphological phenomena that he surveys, draws, and identifies on geological maps and aerial photographs. Identify and prevent the types of sediments, minerals, atmosphere, and moveme of Earth masses and how to be prevented Identify the geology of dam and reservoir sites.
٩. Teaching and Learning Strategies	
Strategy	١. Competitive Learning - ٢. Individual learning - ٣. Learning Cooperative Education strategies ١. Direct teaching strategies: The role of the faculty member is to fully control teaching and learning situations in terms of planning, implementation, and follow-up, while the learner is the passive recipient. Attention is focused on the cognitive outcomes of science, including facts,

	concepts, and theories. Examples include lecturing, using theoretical and practical books, and solving problems. ٢. Directed learning strategies: In which the faculty member plays an active role in facilitating the learner's learning, and the learner is an active participant in the teaching and learning process. Attention is focused on learning processes and outcomes. An example is directed discovery. ٣. Indirect teaching strategies: In which the faculty member plays an active role in facilitating the learner's learning, and the learner is an active participant in the teaching and learning process. Attention is focused on learning processes, examples of which include brainstorming, free discovery, and investigation.

١٠. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
١	١ Theoretical	Introducing the student to the subject of Earth's surface science and its relationship to other sciences and surveying.	Earth's surface science and its relationship to other sciences and surveying.	Lecture Explanation discussion Brainstorming questions Answering students' questions	Questions and discussions during the lecture
٢	١ Theoretical	Introducing the student to the main features of the Earth's crust, the Earth's interior and its atmosphere	The main features of the Earth's crust, the Earth's interior and its atmosphere	Lecture Explanation discussion Brainstorming questions Answering students' questions	Questions and discussions during the lecture
٣	١ Theoretical	Introducing the student to metals, their natural properties with examples.	Metals, their natural properties with examples.	Lecture Explanation discussion Brainstorming questions Answering students' questions	Questions and discussions during the lecture
٤	١	Introducing the student to	Rocks, their	Lecture	Questio

	Theoretical	rocks, their definition, types, and their cycle in nature. Igneous rocks	definition, types, and their cycle in nature. Igneou s rocks	Explanation discussion Brainstorming questions Answering students' questions	ns and discus si ons during the lecture
٥-٦	١ Theoretical	The student learns about sedimentary rocks, their types, clastic, chemical and biological.	Sedimentar y rocks, their types, clastic, chemical and biological.	Lecture Explanation discussion Brainstorming questions Answering students' questions	Questio ns and discussi ons during the lecture
٧-٨	١ Theoretical	The student learns about metamorphism, its types, metamorphic rocks, their texture and types	Metamorphi sm, its types, metamorphi c rocks, their texture and types	Lecture Explanation discussion Brainstorming questions Answering students' questions	Questio ns and discussi ons during the lecture
٩-١٠-١١	١ Theoretical	Learn about the weathering process	Weathering process	Lecture Explanation discussion Brainstorming questions Answering students' questions	Questio ns and discussi ons during the lecture + Quiz
١٢-١٣-١٤	١ Theoretical	Identifying the soil, its cross-section, factors controlling its formation, types, and the soil classification triangle.	Soil, its cross-section, factors controllin g its formation, types, and the soil classification triangle.	Lecture Explanation discussion Brainstorming questions Answering students' questions	Questio ns and discussi ons during the lecture
١٥-١٦-	١	The student learns about	The erosion	Lecture	Questio

١٧	Theoretical	the erosion process, rivers, and Geomorphology phenomena of river sedimentation process, river discharge systems	process, rivers, and Geomorph ol ogy phenomen a of river sedimentati on process, river discharge systems	Explanation discussion Brainstorming questions Answering students' questions	ns and discus si ons during the lecture + Quiz
١٨-١٩-٢٠	١ Theoretical	The student learns about contour maps	Contou r maps	Lecture Explanation discussion Brainstorming questions Answering students' questions	Questio ns and discussi ons during the lecture
٢١-٢٢	١ Theoretical	The student learns about geological maps, their importance, and drawing inclined layers on contour maps.	Geological maps, their importance , and drawing inclined layers on contour maps	Lecture Explanation discussion Brainstorming questions Answering students' questions	Questio ns and discussi ons during the lecture
٢٣-٢٤	١ - Theoretical	Learn about structural geology, types of rock structures, folds, faults and joints	Structural geology, types of rock structures, folds, faults and joints	Lecture Explanation discussion Brainstorming questions Answering students' questions	Questio ns and discussi ons during the lecture
٢٥	١ Theoretical	Identify the movement of Earth masses, its causes, prevention, slips and depressions.	The movement of Earth masses, its causes, prevention , slips and depressions.	Lecture Explanation discussion Brainstorming questions Answering students' questions	Questio ns and discussi ons during the lecture
٢٦	١	Getting to know the	Natural	Lecture	Questio

	Theoretical	natural resources in Iraq, oil, the most important oil fields in Iraq.	resources in Iraq, oil, the most important oil fields in Iraq.	Explanation discussion Brainstorming questions Answering students' questions	ns and discus si ons during the lecture + Quiz
٢٧-٢٨	١ Theoretical	Identify the geology of the sites of dams, reservoirs and tunnels.	Geology of the sites of dams, reservoirs and tunnels.	Lecture Explanation discussion Brainstorming questions Answering students' questions	Questio ns and discussi ons during the lecture
٢٩-٣٠	١ Theoretical	Learn about interpreting geomorphological phenomena from aerial photographs.	Geomorphol ogical phenomena from aerial photographs .	Lecture Explanation discussion Brainstorming questions Answering students' questions	Questio ns and discussi ons during the lecture

١١. Course Evaluation

Score distribution out of ١٠٠
٤٠٪ for the first semester exam + ١٠٪ for tasks such as daily preparation, activity, participation in class, and daily attendance
٤٠٪ for the second semester exam + ١٠٪ for tasks such as daily preparation, activity, participation in class, and daily attendance
The annual course is ٥٠٪ for the first and second semester + ٥٠٪ for the final exam

١٢. Learning and Teaching Resources

Required textbooks (curricular books, if an	No text books
Main references (sources)	١- Principles and Applications of Engineering Geology, written by Majee Abboud Jassim Al-Taie, University of Basra, ٢٠٠١ ٢- Engineering Geology, Miqdad Hussein Ali, Basem Rushdi Hijab, Sinan Hashim Al-Jassar, University of Baghdad, ١٩٩٠ ٣- Foundations of Geology for Engineers, Kenana Muhammad Thabet, Muhammad Omar Al-Ashu, University of Mosul, ١٩٩٣ ٤- Principles of Geology and Geomorphology, Ghada Muhammad Sal Muhammad Mahdi Abbas, Fadel Nomas Al-Saadouni, Technical Institu Foundation, ١٩٨٤

Recommended books and references (scientific journals, reports...)	It is un necessary for this stage, the lectures are very sufficient and suitable to complete the curriculum
Electronic References, Websites	Different site on the web are suitable for more information

Course Description Form

١. Course Name:
Quantity Surveying
٢. Course Code:
٣. Semester / Year:
First Semester and Second Semester / ٢٠٢٤
٤. Description Preparation Date:
٣/٣/٢٠٢٤
٥. Available Attendance Forms:
Classroom
٦. Number of Credit Hours (Total) / Number of Units (Total)
٢ / ٢
٧. Course administrator's name (mention all, if more than one name)

Name: Assistant Prof. Dr. Moslih Amer Salih Email: moslih.a.salih@atu.edu.iq

٨. Course Objectives

Course Objectives	Learning about building materials Learning construction machines Learning how to implement the construction projects

٩. Teaching and Learning Strategies

Strategy	١. Competitive Learning - ٢. Individual learning - ٣. Learning Cooperative Education strategies ١. Direct teaching strategies: The role of the faculty member is to fully control teaching and learning situations in terms of planning, implementation, and follow-up, while the learner is the passive recipient. Attention is focused on the cognitive outcomes of science , including facts, concepts, and theories. Examples include lecturing , using theoretical and practical books, and solving problems. ٢. Directed learning strategies: In which the faculty member plays an active role in facilitating the learner's learning, and the learner is an active participant in the teaching and learning process. Attention is focused on learning processes and outcomes . An example is directed discovery. ٣. Indirect teaching strategies: In which the faculty member plays an active role in facilitating the learner's learning, and the learner is an active participant in the teaching and learning process. Attention is focused on learning processes, examples of which include brainstorming, free discovery, and investigation.

١٠. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
١	٢ **Theoretical**	The student will be able to understand the subject of estimation, cost, its types, and the	Estimation, cost, its types, and the importance of the subject of estimation in	Explanation of lectures using PowerPoint and Word	١. Oral questions to attract attention and brainstorm

		importance of the subject of estimation in construction work**.**	construction work**.**	lectures with questions and discussion and conclusions	٢. An evaluation that includes attendance and activity inside the hall
٢	٢ **Theoretical**	The student will be able to identify the types of modern and traditional construction materials used in engineering projects	Types of modern and traditional construction materials used in engineering projects	Explanation of lectures using PowerPoint and Word lectures with questions and discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
٣	٢ **Theoretical**	The student will be able to distinguish and define cement (its properties, types)	The Cement: distinguish and define cement (its properties, types)	Explanation of lectures using PowerPoint and Word lectures with questions and discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
	٢ **Theoretical**	The student will be able to recognize and distinguish the construction materials: sand and gravel, and be able to calculate the quantities of cement, sand and gravel in concrete mixtures and	The construction materials: sand and gravel, calculate the quantities of cement, sand and gravel in concrete mixtures and mortar.	Explanation of lectures using PowerPoint and Word lectures with questions and discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the

		mortar.			hall
٥	٢ **Theoretical**	The student will be able to understand	Method of calculating the	Explanation of lectures	١. Oral questions to
		and apply the method of calculating the quantities of bricks for construction with mortar, as well as plaster and wall covering materials	quantities of bricks for construction with mortar, as well as plaster and wall covering materials	using PowerPoint and Word lectures with questions and discussion and conclusions	attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
٦	٢ **Theoretical**	The student will be able to understand and apply the method of estimating the quantities of mortar and concrete in construction work.	Estimating quantities of cement mortar and concrete in construction works	Explanation of lectures using PowerPoint and Word lectures with questions and discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall

٧	٢ **Theoretical**	The student will be able to distinguish between ceramic and porcelain tiles and compare them and have the required experience in controlling concrete in a ready-mixed concrete factory.	Ceramic, Porcelain and ready-mixed concrete factory	Explanation of lectures using PowerPoint and Word lectures with questions and discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
٨	٢ **Theoretical**	The student will be able to understand the raw materials in the manufacture of thermo stone (cellular concrete) and the measurements available in the market and learn about the	Cellular Concrete and Insulation Materials	Explanation of lectures using PowerPoint and Word lectures with questions and discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the
		insulation materials used in moisture insulation works.			hall
٩	٢ **Theoretical**	The student will be able to identify construction machines and methods of calculating depreciation	Construction machines and method of calculating depreciation	Explanation of lectures using PowerPoint and Word lectures with questions and discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall

١٠	٢ **Theoretical**	The student will be able to identify how to manage construction machinery and calculate the cost of oil and fuel for construction machinery.	Manage construction machinery and calculate the cost of oil and fuel for construction machinery.	Explanation of lectures using PowerPoint and Word lectures with questions and discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
١١	٢ **Theoretical**	The student will be able to calculate the amount of fuel consumed and the cost in various construction machines	Calculate the amount of fuel consumed and the cost in various construction machines	Explanation of lectures using PowerPoint and Word lectures with questions and discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
١٢	٢ **Theoretical**	The student will be able to identify trench excavators, shovel loaders, dozers, and the	Trench excavators, shovel loaders, dozers, and the cost of digging	Explanation of lectures using PowerPoint and Word	١. Oral questions to attract attention and brainstorm
		cost of digging		lectures with questions and discussion and conclusions	٢. An evaluation that includes attendance and activity inside the hall

١٣	٢ **Theoretical**	The student will be able to calculate and identify Excavator productivity	Excavator work cycle and how its productivity is calculated	Explanation of lectures using PowerPoint and Word lectures with questions and discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
١٤	٢ **Theoretical**	The student will be able to recognize the operation of scrappers	Operating the scrappers and calculating the duty cycle	Explanation of lectures using PowerPoint and Word lectures with questions and discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
١٥	٢ **Theoretical**	The student will be able to learn about the method of manufacturing construction materials and how construction equipment works through showing a film	Various videos about construction work, manufacturing construction materials, and the operation of heavy machinery and equipment	Discuss the film material with questions and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
١٦	٢ **Theoretical**	The student will be able to understand	Calculating the amount of rebar in	Explanation of lectures	١. Oral questions to

		the reinforcement process in separate foundations, concrete columns and beams	separate foundations and column bases	using PowerPoint and Word lectures with questions and discussion and conclusions	attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
١٧	٢ **Theoretical**	The student will be able to understand the reinforcement process in separate foundations, concrete columns and beams	Completing the subject	Explanation of lectures using PowerPoint and Word lectures with questions and discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
١٨	٢ **Theoretical**	The student will be able to understand the reinforcement process in separate foundations, concrete columns and beams	Completing the subject	Explanation of lectures using PowerPoint and Word lectures with questions and discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall

١٩	٢ **Theoretical**	The student will be able to understand the process of one-way and two-way reinforcement and roofing	Calculating the amount of reinforcement in one-way and two- way reinforcement and roofing	Explanation of lectures using PowerPoint and Word lectures with questions and discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
٢٠	٢ **Theoretical**	The student will be able to identify and prepare an estimation schedule (Bill of Quantities) for various construction and maintenance works	Prepare an estimation schedule (Bill of Quantities) for various construction and maintenance works	Explanation of lectures using PowerPoint and Word lectures with questions and discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall

٢١	٢ **Theoretical**	The student will be able to identify and prepare an estimation schedule (Bill of Quantities) for various construction and maintenance works With a discussion of real Bill of Quantities statements and finding the weak formula and gaps that may lead to problems in completing the work in the engineering sections.	Bill of Quantities) for various construction and maintenance works With a discussion of real Bill of Quantities statements and finding the weak formula and gaps that may lead to problems in completing the work in the engineering sections.	Explanation of lectures using PowerPoint and Word lectures with questions and discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
٢٢	٢ **Theoretical**	The student will be able to estimate road works: earthworks and paving layer works, which include estimating the works and quantities of asphalt materials,	Estimate road works: earthworks and paving layer works, which include estimating the works and quantities of asphalt materials, manpower, and different types of	Explanation of lectures using PowerPoint and Word lectures with questions and discussion and	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity
		manpower, and different types of machinery and heavy equipment.	machinery and heavy equipment.	conclusions	inside the hall

٢٣	٢ **Theoretical**	The student will be able to estimate road works: earthworks and paving layer works, which include estimating the works and quantities of asphalt materials, manpower, and different types of machinery and heavy equipment.	Preparing and implementing an expansion joint Spray prime-coat	Explanation of lectures using PowerPoint and Word lectures with questions and discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
٢٤	٢ **Theoretical**	The student will be able to estimate road works: earthworks and paving layer works, which include estimating the works and quantities of asphalt materials, manpower, and different types of machinery and heavy equipment.	Estimating the costs of spraying process of Tack Coat layer Estimate the costs of spreading an asphalt layer of ١٠ cm	Explanation of lectures using PowerPoint and Word lectures with questions and discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
٢٥	٢ **Theoretical**	The student will be able to estimate road works: earthworks and paving layer works, which include estimating the works and quantities of asphalt materials, manpower, and different types of machinery and	Estimating the costs of the pavement layers and the ٧ cm bond layer	Explanation of lectures using PowerPoint and Word lectures with questions and discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
		heavy equipment.			

٢٦	٢ **Theoretical**	The student will be able to estimate road works: earthworks and paving layer works, which include estimating the works and quantities of asphalt materials, manpower, and different types of machinery and heavy equipment.	Paving ٥ cm surface layer of asphalt	Explanation of lectures using PowerPoint and Word lectures with questions and discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
٢٧	٢ **Theoretical**	The student will be able to solve a real example estimating the cost of equipment and materials for paving a road	Solving example of paving a road with the solution on the board	Solving the example with the students	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
٢٨	٢ **Theoretical**	The student will be able to estimate the work of the excavations for canals and drainage paths at depths not exceeding ٣ meters, not exceeding ٥ meters, and those with a depth of ٥ meters.	Solving example for each type of the canals	Explanation of lectures using PowerPoint and Word lectures with questions and discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
٢٩	٢ **Theoretical**	The student will be able to understand railways, tunnels and estimate the cost of completing	Solving an example for a real tunnel	Explanation of lectures using PowerPoint and Word	١. Oral questions to attract attention and brainstorm

		the tunnels		lectures with questions and discussion and conclusions	٢. An evaluation that includes attendance and activity inside the hall
٣٠	٢ **Theoretical**	Types of airports, traffic signs	Types of airports and traffic signs, with video films explaining the work of airports	Explanation of lectures using PowerPoint and Word lectures with questions and discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall

١١. Course Evaluation

Score distribution out of ١٠٠
٤٠٪ for the first semester exam + ١٠٪ for tasks such as daily preparation, activity, participation in class, and daily attendance
٤٠٪ for the second semester exam + ١٠٪ for tasks such as daily preparation, activity, participation in class, and daily attendance
The annual course is ٥٠٪ for the first and second semester + ٥٠٪ for the final exam

١٢. Learning and Teaching Resources

Required textbooks (curricular books, if any)	No text books are available
Main references (sources)	١- Quantity Surveying / Muwafaq Nasser Al-Saour / Ministry of Education / Technical Institutes Foundation ٢- Quantity Surveying / Sami Miri Kazem, Abdel Karim Al-Shamaa / Ministry of Education / Authority of Technical Institutes, ١٩٩٤. ٣- Construction Materials / Jalal Bashir Sarsam / Ministry of Education / Authority of Technical Institutes, ١٩٩٢. ٤- Estimation and specifications of construction works /

	Ghanem Abdel Rahman Bakr, ١٩٨٥. Recent lectures prepared by me that include all the syllabus Extracted from the following sources: ١. Iraqi Guide to Building Materials DPA ٣١١: Ministry of Construction, Housing, Municipalities and Public Works - Department of Buildings Ministry of Planning - Central Organization for Standardization and Quality Control, ٢٠١٧ edition ٢. Resident Engineer Guide for Construction Projects ٢٠١٥ Ministry of Construction and Housing ٣. The standard guide to price analysis for the building and construction sector, Part One, Civil Works
Recommended books and references (scientific journals, reports...)	It is not necessary for this stage, as the lectures are very sufficient and cover the curriculum
Electronic Referenc Websites	Various websites on the Internet

Course Description Form

١. Course Name:
human rights
٢. Course Code:
CS١٠٧
٣. Semester / Year:
٢٠٢٣-٢٠٢٤
٤. Description Preparation Date:
٣ /٣/٢٠٢٤
٥. Available Attendance Forms:
Presence
٦. Number of Credit Hours (Total) / Number of Units (Total)

٢ hours
٧. Course administrator's name (mention all, if more than one name)
Name: mustafa abbas mohammed Email: mustafaalkhafagji٨١٥@gamil.com
٨. Course Objectives

Course Objectives ١.Educating students about human rights principles ٢. Explaining the articles of the Universal Declaration of Human Rights of ١٩٤٨ and indicating the mos prominent articles ٣. The student should be familiar with constitutional, judicial and political guarantees	**٤. For the student to become familiar with the stages development of the concept of human rights in the ancient, medieval, and modern eras**

٩. Teaching and Learning Strategies	
Strategy	Explaining the curriculum divided into two hours each week using multiple means of illustration, such as press reports, archival books, and illustrated materials.

١٠. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method

١	٢	Developing knowledge human rights	The historical development of human rights in ancient times (Mesopotamia other ancient civilizations) Explanation and discussion of the articles of the Universal Declaration Human Rights ١٩٤٨ Human rights international a regional conventions /European Convention Human Rights African Charter Human Rights Arab Charter Human Rights) -Rights in Isla law -Aspects of equality between men and women in	Theoretical lecture And discussion	General questio and discussion
٢	٢				
٣	٢	Developing knowledge human rights		Theoretical lecture And discussion	General questio and discussion
٤	٢				
٥	٢	Developing knowledge human rights		Theoretical lecture And discussion	General questio and discussion
٦	٢				
٧	٢	Developing knowledge human rights		Theoretical lecture And discussion	General questio and discussion
٨	٢				
٩	٢	Developing knowledge human rights		Theoretical lecture And discussion	General questio and discussion
١٠	٢				
١١	٢	Developing knowledge human rights		Theoretical lecture And discussion	General questions a discussion
١٢	٢				
١٣	٢	Developing knowledge human rights		Theoretical lecture And discussion	General questio and discussion Exams
١٤	٢				
١٥	٢	Developing knowledge human rights		Exams	General questio and discussion
١٦	٢				
١٧	٢	Developing knowledge human rights		Theoretical lecture And discussion	General questio and discussion
١٨	٢				
١٩	٢	Developing knowledge human rights		Theoretical lecture And discussion	General questio and discussion
٢٠	٢				General questio

٢١	٢	Developing knowledge human rights	-Freedoms in Islamic law -Public	lecture And discussion	and discussion General questio and discussion
٢٢	٢				
٢٣	٢	Developing knowledge human rights	freedoms (fundamental and individual freedoms, intellectual and cultural	Theoretical lecture And discussion	General questio and discussion exams
٢٤	٢				
٢٥	٢	Developing knowledge human rights	freedom, freedom of opinion and freedom of education). Economic freedom to work -Human rights guarantees and protection at the national level (constitutional guarantees, judicial and political guarantees) -Human rights in national legislation / the Iraqi constitution	Theoretical lecture And discussion	
٢٦	٢				
٢٧	٢	Developing knowledge human rights		Theoretical lecture And discussion exams	
٢٨	٢				
٢٩	٢	Developing knowledge human rights			
٣٠	٢				

١١. Course Evaluation

Distributing the score out of ١٠٠ according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .....etc

١٢. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Lectures according to the curriculum
Main references (sources)	Human Rights book written by Dr. Alaa Al-Enezi

Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	Various press reports on YouTube

Course Description Form

١. Course Name:	
Cadastral engineering survey	
٢. Course Code:	
٣. Semester / Year:	
First Semester and Second Semester / ٢٠٢٣-٢٠٢٤	
٤. Description Preparation Date:	
٣/٣/٢٠٢٤	
٥. Available Attendance Forms:	
Classroom	
٦. Number of Credit Hours (Total) / Number of Units (Total)	
٥ / ١٠	
٧. Course administrator's name (mention all, if more than one name)	
Name: maedah kadhem obaid Email: maedah.kh١٩٦٥@atu.edu.iq	
٨. Course Objectives	
Course Objectives	**Teaching and training students how to calculate and measure areas, find the sizes of dirt quantities, perform calculations for horizontal and vertical curves, project them onto the ground, project buildings, perform the necessary calculations to find the missing lengths and directions of the boundaries of land plots and the coordinates of their corners, calculate their areas, and**

	solve problems in all types of intersections, the rear intersection, and in dividing lands using advanced devices such as the complete station device. And the global positioning device. .

٩. Teaching and Learning Strategies

Strategy	١. Competitive Learning - ٢. Individual learning - ٣. Learning Cooperative Education strategies ١. Direct teaching strategies: The role of the faculty member is to fully control teaching and learning situations in terms of planning, implementation, and follow-up, while the learner is the passive recipient. Attention is focused on the cognitive outcomes of science, including facts, concepts, and theories. Examples include lecturing, using theoretical and practical books, and solving problems. ٢. Directed learning strategies: In which the faculty member plays an activ role in facilitating the learner's learning, and the learner is an active participant in the teaching and learning process. Attention is focused on learning processes and outcomes. An example is directed discovery. ٣. Indirect teaching strategies: In which the faculty member plays an act role in facilitating the learner's learning, and the learner is an act participant in the teaching and learning process. Attention is focused learning processes, examples of which include brainstorming, free discove and investigation.

١٠. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation m

					ethod
١	٢ Theoretica + ٣ practical	Introducing the student toThe engineering and cadastral survey and the drawing scale used for each case, with an explanation of the different methods for calculating areas in the field, including: areas of regular shapes, and division into regular geometric shapes such as triangles, squares, rectangles, trapezoids, circles and their parts.	Introducing the student toThe engineering and cadastral survey and the drawing scale used for each case, with an explanation of the different methods for calculating areas in the field, including: areas of regular shapes, and division into regular geometric shapes such as triangles, squares, rectangles, trapezoids, circles and their parts	Lecture Explanation discussion Brainstormin g questions Answering students' questions	Questions and discussions during the le

					c t u r e
٢	٢ Theoretica + ٣ practical	Introducing the student to Establishing columns at equal intervals (with the trapezoidal method and Simpson’s method), and erecting columns at unequal intervals on the survey line of a piece of land and calculating its areas using all the methods shown	Introducing the student to Establishing columns at equal intervals (with the trapezoidal method and Simpson’s method), and erecting columns at unequal intervals on the survey line of a piece of land and calculating its areas using all the methods shown	Lecture Explanation discussion Brainstormin g questions Answering students' questions	Q u e s t i o n s a n d d i s c u s s i o n s d u r i n g t h e l e c t

					ure
٣	٢ Theoretica + ٣ practical	Introducing the student to. Using the coordinate method in calculating areas, the longitude multiplier (D.M.D) method	Using the coordinate method in calculating areas, the longitude multiplier (D.M.D) method	Lecture Explanation discussion Brainstormin g questions Answering students' questions	Questions and discussions during the lectu

					re
٤	٢ Theoretica + ٣ practical	Introducing the student to Different methods for calculating areas from a map include: dividing into regular geometric shapes such as triangles or squares, using graph paper, using slices, or using an electronic planometer to calculate areas (when the fixing point is inside or outside the shape). Arithmetic and demarcation methods for calculating the areas of cross-sections of different shapes and slopes of the Earth's surface	Different methods for calculating areas from a map include: dividing into regular geometric shapes such as triangles or squares, using graph paper, using slices, or using an electronic planometer to calculate areas (when the fixing point is inside or outside the shape). Arithmetic and demarcation methods for calculating the areas of cross-sections of different shapes and slopes of the Earth's surface	Lecture Explanation discussion Brainstormin g questions Answering students' questions	Questions and discussions during the lectur

					e
٥-٦	٢ Theoretica + ٣ practical	The student learns about. Calculating the volumes of dirt lots using the law of average of two bases and the missing wedge method (or prismatic) and the approximate method from the longitudinal section and calculating the size of the quarry and the reservoir for the dams using contour lines and performing calculations and drawing the dust transport curve. And using the map to perform the necessary calculations for areas and volumes in different ways	The student learns about. Calculating the volumes of dirt lots using the law of average of two bases and the missing wedge method (or prismatic) and the approximate method from the longitudinal section and calculating the size of the quarry and the reservoir for the dams using contour lines and performing calculations and drawing the dust transport curve. And using the map to perform the necessary calculations for areas and volumes in different ways	Lecture Explanation discussion Brainstormin g questions Answering students' questions	Questions and discussions during the lect

					ure
٧	٢ Theoretica + ٣ practical	The student learns about Identifying the types of vertical curves: (the convex curve and the concave curve) and the equation for the parabola to calculate the level (the analytical method) and how to project it to the ground - its specifications in terms of the relationship of its length to the viewing distance and speed and the algebraic difference between the two slopes and its equivalent radius.	Identifying the types of vertical curves: (the convex curve and the concave curve) and the equation for the parabola to calculate the level (the analytical method) and how to project it to the ground - its specifications in terms of the relationship of its length to the viewing distance and speed and the algebraic difference between the two slopes and its equivalent radius.	Lecture Explanation discussion Brainstormin g questions Answering students' questions	Questions and discussions during the lectu

					re
٨	٢ Theoretica + ٣ practical	Learn about the Horizontal curves: the simple circular horizontal curve, its symbols, terms, laws, and specifications in terms of the relationship of its radius to vehicle speed, the coefficient of friction of tires, and the additional slope or (lateral lift	Horizontal curves: the simple circular horizontal curve, its symbols, terms, laws, and specifications in terms of the relationship of its radius to vehicle speed, the coefficient of friction of tires, and the additional slope or (lateral lift).	Lecture Explanation discussion Brainstormin g questions Answering students' questions	Questions and discussions during the lectu

					re+
					Quiz
٩	٢ Theoretica + ٣ practical	Compound and inverted circular horizontal curves, their types, calculating their elements and using them on highways and at intersections, calculating the coordinates of main stations and points on the curves	. Compound and inverted circular horizontal curves, their types, calculating their elements and using them on highways and at intersections, calculating the coordinates of main stations and points on the curves	Lecture Explanation discussion Brainstorming questions Answering students' questions	Questions and discussions during the le

					ct
					ure
١٠	٢ Theoretica + ٣ practical	The student learns about Various methods for projecting a simple circular curve, including: the method of tangent angles (or deviation) using a theodolite and a tape, or using only two theodolite devices, and using electronic devices to project this curve, or using the coordinates of control points and curve points (the method of modern site technologies).	The student learns about Various methods for projecting a simple circular curve, including: the method of tangent angles (or deviation) using a theodolite and a tape, or using only two theodolite devices, and using electronic devices to project this curve, or using the coordinates of control points and curve points (the method of modern site technologies).	Lecture Explanation discussion Brainstormin g questions Answering students' questions	Questions and discussions during the lec

					t
					ure+Quiz
١١	٢ Theoretica + ٣ practical	The student learns about **On the method of using columns to project curves (columns on the tangent and columns on the major chord) and the method of projecting from the point of intersection - the obstacles that hinder projection and how to overcome them (on the arch, at the main stations, or during construction)**	**On the method of using columns to project curves (columns on the tangent and columns on the major chord) and the method of projecting from the point of intersection - the obstacles that hinder projection and how to overcome them (on the arch, at the main stations, or during construction)**	Lecture Explanation discussion Brainstorming questions Answering students' questions	Questions and discussions during the

					lecture
١٢	٢ Theoretica + ٣ practical	**Transitional or spiral curves: their types, use, and calculations (cleothroid, cubic parabola, and cubic spiral) and methods of projecting them using tangent angles, chords, or coordinates, calculating the coordinates of the main stations and points on the curves**	Transitional or spiral curves: their types, use, and calculations (cleothroid, cubic parabola, and cubic spiral) and methods of projecting them using tangent angles, chords, or coordinates, calculating the coordinates of the main stations and points on the curves	Lecture Explanation discussion Brainstorming questions Answering students' questions	Questions and discussions during the l

					ecture
١٣	٢ Theoretica + ٣ practical	Learn about structural A small road project: performing the necessary calculations for vertical and horizontal curves (determining stations and levels, how to draw horizontal plans and the longitudinal section of the actual project and indicate all the elements and stations on them.	A small road project: performing the necessary calculations for vertical and horizontal curves (determining stations and levels, how to draw horizontal plans and the longitudinal section of the actual project and indicate all the elements and stations on them.	Lecture Explanation discussion Brainstormin g questions Answering students' questions	Questions and discussions during the le

					cture
١٤	٢ Theoretica + ٣ practical	Learn about structural Calculate the cross-sectional areas of the project and the sizes of the dirt quantities, draw the dust transport curve, and indicate the actual width of the excavation and backfill on both sides of the center line of the project.	Calculate the cross-sectional areas of the project and the sizes of the dirt quantities, draw the dust transport curve, and indicate the actual width of the excavation and backfill on both sides of the center line of the project.	Lecture Explanation discussion Brainstormin g questions Answering students' questions	Questions and discussions during the lec

					ture
١٥	٢ Theoretica + ٣ practical	Learn about structural. Structural surveying: Surveying work related to constructing houses and large buildings, establishing their levels, straightening lines, canals, sewers, pipes, electrical transmission, and long trenches, and establishing their levels.	Structural surveying: Surveying work related to constructing houses and large buildings, establishing their levels, straightening lines, canals, sewers, pipes, electrical transmission, and long trenches, and establishing their levels.	Lecture Explanation discussion Brainstorming questions Answering students' questions	Questions and discussions during the lect

					ure+Quiz
١٦	٢ Theoretica + ٣ practical	. Polygon calculations: types of angles and directions, methods of correcting them and calculating them for the closed circular polygon and the connecting polygon, calculating the coordinates for the corners of the polygon and correcting them (compass method), calculating lengths and corrected directions (inverse calculations for sides).	. Polygon calculations: types of angles and directions, methods of correcting them and calculating them for the closed circular polygon and the connecting polygon, calculating the coordinates for the corners of the polygon and correcting them (compass method), calculating lengths and corrected directions (inverse calculations for sides).	Lecture Explanation discussion Brainstorming questions Answering students' questions	Questions and discussions during the

					lecture
١٧	٢ Theoretica + ٣ practical	The unknown intersections or measurements in the process of ribbing and triangulation include: The first intersection (to find two unknown lengths) using the methods of trigonometry and the laws of ribbing.	The unknown intersections or measurements in the process of ribbing and triangulation include: The first intersection (to find two unknown lengths) using the methods of trigonometry and the laws of ribbing.	Lecture Explanation discussion Brainstormin g questions Answering students' questions	Questions and discussions during the l

					ecture
١٨	٢ Theoretica + ٣ practical	Learn about structural Using the methods of analytical geometry and coordinate rotation, applications in road intersections and land division	Using the methods of analytical geometry and coordinate rotation, applications in road intersections and land division	Lecture Explanation discussion Brainstormin g questions Answering students' questions	Questions and discussions during the le

					c t u r e
١٩	٢ Theoretica + ٣ practical	Learn about structural The second intersection. (To find the length of one side and the direction of another side) using the trigonometry method	The second intersection. (To find the length of one side and the direction of another side) using the trigonometry method	Lecture Explanation discussion Brainstormin g questions Answering students' questions	Q u e s t i o n s a n d d i s c u s s i o n s d u r i n g t h e l e c

					ture
٢٠	٢ Theoretica + ٣ practical	Learn about structural Using the laws of ribbing, analytical geometry, and their applications in road intersections and land division.	Using the laws of ribbing, analytical geometry, and their applications in road intersections and land division.	Lecture Explanation discussion Brainstormin g questions Answering students' questions	Questions and discussions during the lect

					ure
٢١	٢ Theoretica + ٣ practical	Learn about structural The third intersection. (To find the directions of the two unknown sides) using the trigonometric method	The third intersection. (To find the directions of the two unknown sides) using the trigonometric method	Lecture Explanation discussion Brainstormin g questions Answering students' questions	Questions and discussions during the lectu

					re
٢٢	٢ Theoretica + ٣ practical	Learn about structural Using the analytical geometric method, its applications in road intersections and land division	Using the analytical geometric method, its applications in road intersections and land division	Lecture Explanation discussion Brainstormin g questions Answering students' questions	Questions and discussions during the lec

					ture
٢٣	٢ Theoretica + ٣ practical	Learn about structuralIntroducing the student to finding the unknown measurements (lengths and directions) in circular and connected polygons using different intersections with examples of the types mentioned above.	Introducing the student to finding the unknown measurements (lengths and directions) in circular and connected polygons using different intersections with examples of the types mentioned above.	Lecture Explanation discussion Brainstormin g questions Answering students' questions	Questions and discussions during the l

					ecture
٢٤	٢ Theoretica + ٣ practical	Learn about structural Back or reverse intersection: to find the location of a selected point by observing three points with known horizontal locations for three different (or possible) cases.	Back or reverse intersection: to find the location of a selected point by observing three points with known horizontal locations for three different (or possible) cases.	Lecture Explanation discussion Brainstormin g questions Answering students' questions	Questions and discussions during the le

					c t u r e
٢٥	٢ Theoretica + ٣ practical	Learn about structural How to prepare a table with logical steps to find the unknown measurements for various problems using the three intercepts, forward and inverse calculations, and the back intercept.	How to prepare a table with logical steps to find the unknown measurements for various problems using the three intercepts, forward and inverse calculations, and the back intercept.	Lecture Explanation discussion Brainstormin g questions Answering students' questions	Q u e s t i o n s a n d d i s c u s s i o n s d u r i n g t h e l e c

						ture
٢٦	٢ Theoretica + ٣ practical	Learn about structural Dividing lands: Dividing polygons: Dividing a polygon into two parts using a line with two ends with known locations. Dividing the polygon into two parts using a line with a known direction and starting from a point with a known location (and with a specific width in the case of a road or irrigation canal) and calculating the areas of the parts and uncalculated locations, practical applications in dividing land for multiple cases.	Lecture Explanation discussion Brainstormin g questions Answering students' questions	Questio n s and discussi o ns during the lecture		
٢٧	٢ Theoretica + ٣ practical	Learn about structural Dividing a polygon into two parts of equal area using a line starting from a point of known location. Dividing the polygon into two parts of equal area using a line with a known direction. Practical applications in dividing land for multiple practical cases.	Dividing a polygon into two parts of equal area using a line starting from a point of known location. Dividing the polygon into two parts of equal area using a line with a known direction. Practical applications in dividing land for multiple practical cases.		Lecture Explanation discussion Brainstormin g questions Answering students' questions	Questions and disc

					ussions during the lecture
٢٨	٢ Theoretica + ٣ practical	Learn about structural A small project to divide large lands using different calculations and intersections and according to certain specifications for areas, street dimensions and radii.	A small project to divide large lands using different calculations and intersections and according to certain specifications for areas, street dimensions and radii.	Lecture Explanation discussion Brainstormin g questions Answering students' questions	Questions and discu

					s s i o n s d u r i n g t h e l e c t u r e
٢٩	٢ Theoretica + ٣ practical	Learn about structural Complete the project calculations and draw its horizontal plan	Complete the project calculations and draw its horizontal plan	Lecture Explanation discussion Brainstormin g questions Answering students' questions	Q u e s t i o n s a n d d i

					scussions during the lecture
٣٠	٢ Theoretica + ٣ practical	Learn about structural Draw its longitudinal section, and conduct discussions about the final results of dividing the plot of land	Draw its longitudinal section, and conduct discussions about the final results of dividing the plot of land	Lecture Explanation discussion Brainstorming questions Answering students' questions	Questions and dis

					cussions during the lecture

١١. Course Evaluation

Score distribution out of ١٠٠
٢٠٪ for the first semester exam / ١٠٪ for the theoretical exam + ١٠٪ for the practical exam
٢٠٪ for the second semester exam / ١٠٪ for the theoretical exam + ١٠٪ for the practical exam + ١٠٪ for the annual evaluation
The annual course is ٥٠٪ for the first and second semester + ٥٠٪ for the final exam

١٢. Learning and Teaching Resources

Required textbooks (curricular books, if	Engineering and cadastral survey book
Main references (sources)	Recommended supporting books and references (scientific journals, reports...) Auxiliary manual for the Leica TS٠٦ Total Station

Recommended books and references (scientific journals, reports...)	Electronic references, Internet sites, various sites on the Internet
Electronic References, Website	Different site on the web are suitable for more information

Course Description Form

١٣.Course Name:	
English	
١٤.Course Code:	
١٥.Semester / Year:	
Year	
١٦.Description Preparation Date:	
٣/ ٣ / ٢٠٢٤	
١٧.Available Attendance Forms:	
١٨.Number of Credit Hours (Total) / Number of Units (Total)	
Total credit hours: ١ Total units number: ١	
١٩.Course administrator's name (mention all, if more than one name)	
Name: Inas Haider Kadhim Email: inas.kadhim.iba@atu.edu.iq	
٢٠.Course Objectives	
Course Objectives	١-Defines prefix ,suffix, root. ٢. Understands the roles and functions of the grammar. ٣.Measures the understanding by making oral tests. ٤. Apply the rules of reading , writing , listening, and speaking ٥. Performs the plurality of and its rules.
٢١. Teaching and Learning Strategies	

Strategy	❖ Theoretic lectures strategy. ❖ Practical Application Strategy ❖ Conversation and discussion strategy. ❖ Regular testing strategy. ❖ Write a report on the topics ❖ Use visuals and videos that are relevant to the educatio content

٢٢. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
١st	١	Wh- questions **Yes,no question**	**Questions**	**Theoretic lectures strategy.**	١-Daily quizzes ٢-Quarte testin ٣-Annua examinat n.
٢nd	١	Knowing the meaning of the **prese tense , its uses,**	Present simple and continuous tense		١-Daily quizzes ٢-Quarte testin ٣-Annua examinat n.
٣rd	١	Give the students all the rules that help them to control all the tenses	Tenses **(present . past. Future)**		١-Daily quizzes ٢-Quarte testin ٣-Annua examinat n.
٤th	١	The students must know the verbs and have as main and auxiliary ver	Aux. verbs as Do , have		١-Daily quizzes

					٢-Quarte testin ٣-Annua examinat n.
٥th	١	Investigate the quantifiers much m .	Quantifiers, countable, uncountable		١-Daily quizzes ٢-Quarte testin ٣-Annua examinat n.
٦th	١	Knowing the two types of adjective comparative and superlative	Adjectives , comparative , superlative		١-Daily quizzes ٢-Quarte testin ٣-Annua examinat n.
٧th	١	Classify the three status of if clause	If clause		١-Daily quizzes ٢-Quarte testin ٣-Annua examinat n.
٨th	١	Knowing the most common structu of gerund and infinitives	Gerund and infinitive		١-Daily quizzes ٢-Quarte testin ٣-Annua examinat n.
٩th	١	The focus will be on the rules of grammar.	Focus on grammar		١-Daily quizzes ٢-Quarte testin ٣-Annua examinat

					n.
١٠th	١	Give the students the rules how to change the active to passive .	Passive and active voice		١-Daily quizzes ٢-Quarte testin ٣-Annua examinat n.
١١th	١	Explain the use of present perfect continuous	Present perfect continues		١-Daily quizzes ٢-Quarte testin ٣-Annua examinat n.
١٢th	١	There are rules of plurality, regula and irregular	Rules of plurality		١-Daily quizzes ٢-Quarte testin ٣-Annua examinat n.
١٣th	١	Review, and answer all the exercise that is specific to the pronunciation.	**Exercise on pronunciation**		١-Daily quizzes ٢-Quarte testin ٣-Annua examinat n.
١٤th	١	Use all the rules of English to change the direct into indirect speech.	Direct and indirect speech		١-Daily quizzes ٢-Quarte testin ٣-Annua examinat n.
١٥t	١	Make a full review of all previous lectures	**Review**		١-Daily quizzes

h					٢-Quarte testir ٣-Annua examina t n.

١١.Course Evaluation	
Distributing the score out of ١٠٠ according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports.....etc.	
١٢.Learning and Teaching Resources	
Required textbooks (curricular books, if any)	**Headway starter**
Main references (sources)	
Recommended books and references (scientific journals, reports, web sites...)	

Course Description Form

١. Course Name:
Aerial photogrammetry
٢. Course Code:
٣. Semester / Year:
First Semester and Second Semester / ٢٠٢٤
٤. Description Preparation Date:
٣/٣/٢٠٢٤
٥. Available Attendance Forms:
Classroom
٦. Number of Credit Hours (Total) / Number of Units (Total)
Number of hours: ٢ theoretical, ٣ practical - number of units: ٥
٧. Course administrator's name (mention all, if more than one name)
Name: Basheer Saleem Jasim Email: basheer.jasim@atu.edu.iq
٨. Course Objectives

Course Objectives	The student should be able to recognize the principles of

	aerial photogrammetry, the types of aerial photographs and cameras, find the scale of various types of aerial photographs, create a three-dimensional model, and calculate the levels of ground features. As well as designing airlines, making mosaics, using inlay devices in preparing detailed maps from aerial photographs, and dealing with modern software Erdas-Imagine. Regarding radiological and spatial correction of data and digital images and preparing maps from them.

٩. Teaching and Learning Strategies

Strategy	١. Competitive Learning - ٢. Individual learning - ٣. Learning Cooperative Education strategies ١. Direct teaching strategies: The role of the faculty member is to fully control teaching and learning situations in terms of planning, implementation, and follow-up, while the learner is the passive recipient. Attention is focused on the cognitive outcomes of science, including facts, concepts, and theories. Examples include lecturing, using theoretical and practical books, and solving problems. ٢. Directed learning strategies: In which the faculty member plays an active role in facilitating the learner's learning, and the learner is an active participant in the teaching and learning process. Attention is focused on learning processes and outcomes . An example is directed discovery. ٣. Indirect teaching strategies: In which the faculty member plays an active role in facilitating the learner's learning, and the learner is an active participant in the teaching and learning process. Attention is focused on learning processes, examples of which include brainstorming, free discovery, and investigation.

١٠. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
١	٢ theoretical ٣ practical	The student will be able to understand the history of aerial surveying	A historical overview of the history of aerial surveying and distance sensing, its development and uses at present, the relationship of aerial surveying to distance	Explanation of lectures using powerpoint and Word lectures with questions	١. Oral questions to attract attention and brainstorm ٢. An evaluation

			sensing, types of projections, and types of images.	discussion and conclusions	that includes attendance and activity inside the hall
٢	٢ theoretical ٣ practical	The student will be able to understand the difference between aerial photographs and a map	The difference between aerial photographs and a map and some important terms in the subject of aerial surveys related to the image and information shown in the aerial photographs.	Explanation of lectures using powerpoint and Word lectures with questions discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
٣	٢ theoretical ٣ practical	The student will be able to understand the geometric relationships of aerial photographs	Vertical aerial photographs, geometric relationships, coordinate systems, scale of vertical aerial photographs over flat ground and ground of different levels, and the average drawing scale.	Explanation of lectures using powerpoint and Word lectures with questions discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
٤	٢ theoretical ٣ practical	The student will be able to understand ground and photographic coordinates	Other methods for calculating the scale of vertical aerial photographs, ground coordinates from vertical aerial photographs, and calculating horizontal and diagonal distances between points. Displacement resulting from terrain and height calculations	Explanation of lectures using powerpoint and Word lectures with questions discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
٥	٢ theoretical ٣ practical	The student will be able to understand stereoscopic vision	Stereo vision and its foundations, depth perception using both eyes, stereo vision using images, its conditions,	Explanation of lectures using powerpoint and Word	١. Oral questions to attract attention and brainstorm

			and ways to see the stereoscopic model using images. Using a mirrored stereoscope using the baseline method for the two images. Y-divergence, vertical amplification.	lectures with questions discussion and conclusions	٢. An evaluation that includes attendance and activity inside the hall
٦	٢ theoretical ٣ practical	The student will be able to understand and design airlines	Flight line design, flight altitude, local scale, longitudinal and lateral overlap, baseline, calculating the total number of images of an area.	Explanation of lectures using powerpoint and Word lectures with questions discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
٧	٢ theoretical ٣ practical	The student will be able to understand stereoscopic divergence	Stereoscopic distance, the relationship between distance and height of points, distance difference, sectarian mark, methods of measuring distance, stereometer, and how to work with it.	Explanation of lectures using powerpoint and Word lectures with questions discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
٨+٩	٢ theoretical ٣ practical	The student will be able to understand rates of abandonment	Finding the distance of the two base points for two successive aerial photographs, distance equations, and finding the relationship between the distance and the height of the points. Reinforcing the topic with solved examples.	Explanation of lectures using powerpoint and Word lectures with questions discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
١٠	٢ theoretical ٣ practical	The student will be able to understand the	Types of aerial photography machines: “Digital and Analog”	Explanation of lectures using	١. Oral questions to attract

		types of aerial photography machines	The angle of field of view and classification of aerial photography machines about the angle of field of view and its uses, parts of the aerial photography machine.	powerpoint and Word lectures with questions discussion and conclusions	attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
١١+١٢	٢ theoretical ٣ practical	The student will be able to understand how to deal with oblique aerial photographs	Oblique aerial photographs, rotational guidance in the system (incline, roll, yaw), auxiliary axes system for oblique photographs, the scale of oblique photographs, ground coordinates from oblique photographs and geometric analysis of oblique aerial photographs.	Explanation of lectures using powerpoint and Word lectures with questions discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
١٣	٢ theoretical ٣ practical	The student will be able to understand the process of straightening oblique images	Evaluation of oblique aerial photographs/foundations of evaluation/methods of evaluation.	Explanation of lectures using powerpoint and Word lectures with questions discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
١٤	٢ theoretical ٣ practical	The student will be able to understand the types of atmospheric mosaic	Mosaic, its advantages, disadvantages, and uses - its types.	Explanation of lectures using powerpoint and Word lectures with questions discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
١٥	٢	The student will	The student will be able	Explanation	١. Oral

	theoretical ٣ practical	be able to understand the foundations of aerial stereoscopic surveying	to understand the foundations of stereoscopic aerial surveying and the foundations of stereoscopic aerial surveying using insertion devices. Internal guidance - steps to implement it: ١ - Preparing the positive glass image ٢- Compensation for distortion caused by the camera lens ٣- Centering the positive glass image in the projector. ٤- Set the correct basic distance on the projector.	of lectures using powerpoint and Word lectures with questions discussion and conclusions	questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
١٦	٢ theoretical ٣ practical	The student will be able to understand all the movements of the filling device	Relative orientation, possible movements of the display device (translational and rotational movements), distribution of points used to guide the stereoscopic model, and a study of the effect of translational and rotational movements on the movement of images projected into the filling device.	Explanation of lectures using powerpoint and Word lectures with questions discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
١٧	٢ theoretical ٣ practical	The student will be able to understand relative orientation	Methods of performing relative guidance using the various elements of the filling device, focusing on performing relative guidance using only the rotary elements.	Discuss the film material with questions and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall

١٨	٢ theoretical ٣ practical	The student will be able to understand absolute guidance	Absolute guidance: -Choose the model drawing scale - Adjust the scale of the model -Settle the model	Explanation of lectures using powerpoint and Word lectures with questions discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
١٩-٣٠	٢ theoretical ٣ practical	The student will be able to understand how to work with the ERDAS program	Using the "Erdas-Imagine" program to suit the student's needs for dealing with digital data, by clarifying the following headings: -The viewer -Image info -Histogram Pixel data- Inquire cursor - Measurement tools - Inquire box - Tile viewers- Link viewers - Arrange layers viewer - Flicker- Blend fed - Swipe- Raster attribute editor - Imageset - Geometric correction - Filtering - Mosaic Images- Vector- Raster to vector- Map composer	Explanation of lectures using powerpoint and Word lectures with questions discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall

١١. Course Evaluation

Score distribution out of ١٠٠
٤٠٪ for the first-semester exam + ١٠٪ for tasks such as daily preparation, activity, participation in class, and daily attendance
٤٠٪ for the second-semester exam + ١٠٪ for tasks such as daily preparation, activity, participation in class, and daily attendance
The annual course is ٥٠٪ for the first and second semesters + ٥٠٪ for the final exam

١٢. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Aerial photogrammetry
Main references (sources	١- Aerial photogrammetry - Labib Nassif, Technical Education Authority, second edition, ١٩٩٩. ٢-Manual of photogrammetry-American Society of photogrammetry By Moffitt ٣- Elements of photogrammetry –poulR.wolf ٢ndEdition. ٤-Erdas ImagineTourGuides, LeicaGeosystems Geospatial Imaging, ٢٠٠٦.
Recommended books and references (scientific journals, reports...)	It is not necessary for this stage, as the lectures are very sufficient and cover the curriculum
Electronic Referenc Websites	Various websites on the Internet

Course Description Form

١. Course Name:
Digital photogrammetry
٢. Course Code:
٣. Semester / Year:
First Semester and Second Semester / ٢٠٢٤
٤. Description Preparation Date:
٣/٣/٢٠٢٤
٥. Available Attendance Forms:
Classroom
٦. Number of Credit Hours (Total) / Number of Units (Total)
٢ theoretical + ٢ practical - number of units ٤
٧. Course administrator's name (mention all, if more than one name)

Name: Basheer Saleem Jasim Email: basheer.jasim@atu.edu.iq

٨. Course Objectives

Course Objectives	The student should be able to deal with space data and digital aerial images and create mosaics through software, as well as direct digital aerial images to form a three-dimensional model, a three-dimensional display of the Earth's surface, extracting information and measurements of the Earth's surface features through three-dimensional vision, and using modern software to conduct the process of aerial triangulation and the process of evaluating images. Three-dimensional digital and DEM extraction of the stereoscopic model and its applications in the field of other software. To learn about: the basic concepts of remote sensing, types of satellites, dealing with space data, its specifications, processing, and interpretation.

٩. Teaching and Learning Strategies

Strategy	١. Competitive Learning - ٢. Individual learning - ٣. Learning Cooperative Education strategies Direct teaching strategies: The role of the faculty member is to fully control teaching and learning situations in ١. terms of planning, implementation, and follow-up, while the learner is the passive recipient. Attention is focused on the cognitive outcomes of science, including facts, concepts, and theories. Examples include lecturing, using theoretical and practical books, and solving problems. ٢. Directed learning strategies: In which the faculty member plays an active role in facilitating the learner's learning, and the learner is an active participant in the teaching and learning process. Attention is focused on learning processes and outcomes. An example is directed discovery. ٣. Indirect teaching strategies: In which the faculty member plays an active role in facilitating the learner's learning, and the learner is an active participant in the teaching and learning process. Attention is focused on learning processes, examples of which include brainstorming, free discovery, and investigation.

١٠. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method

١	٢ theoretical ٢ practical	The student will be able to understand the reflectivity of objects on the Earth’s surface	Reflectivity of Earth's surface phenomena and natural response patterns to them, spectral reflectivity curves of Earth's surface phenomena.	Explanation of lectures using powerpoint and Word lectures with questions discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
٢	٢ theoretical ٢ practical	The student will be able to understand atmospheric sensor techniques	Air and space sensors, satellites (American, French, European, etc.).	Explanation of lectures using powerpoint and Word lectures with questions discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
٣	٢ theoretical ٢ practical	The student will be able to understand the interpretation of images	Interpretation of satellite images and data, features of shape, size, pattern, shadows, darkness, composition,	Explanation of lectures using powerpoint and Word lectures with questions discussion	١. Oral questions to attract attention and brainstorm ٢. An evaluation that
			location, and basic factors in interpreting aerial images to analyze the Earth’s surface.	and conclusions	includes attendance and activity inside the hall

٤	٢ theoretical ٢ practical	The student will be able to understand the preprocessing of images	Digital processing of space data (images), radiological correction, removal of distortion, improvement, and geometric correction "Two-dimensional Image Rectification"	Explanation of lectures using powerpoint and Word lectures with questions discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
٥	٢ theoretical ٢ practical	The student will be able to understand and implement atmospheric mosaics	Implementing mosaic work from digital aerial photographs or satellite data using the Erdas program.	Explanation of lectures using powerpoint and Word lectures with questions discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
٦	٢ theoretical ٢ practical	The student will be able to understand the distinction between types of accuracy	Digital images and the types of resolution of the image, the coordinates of the image unit “Pixel coordinate system”, the coordinates of the digital	Explanation of lectures using powerpoint and Word lectures with questions discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance

			image “Image coordinate system” and the ground coordinate system, subtracting part of the digital images in different shapes using the Erdas program.		and activity inside the hall
٧+٨	٢ theoretical ٢ practical	The student will be able to understand the foundations of aerial stereoscopic surveying	Foundations of stereoscopic aerial survey: "Interior orientation" External orientation And its elements "omega, phi, kappa" Absolute orientation	Explanation of lectures using powerpoint and Word lectures with questions discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
٩	٢ theoretical ٢ practical	The student will be able to understand the tools of the stereo-analysis program	Identify the “stereo analyst” icon within the program "Erdas" and Explore toolbar "stereo analysis toolbar".	Explanation of lectures using powerpoint and Word lectures with questions discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
١١+١١	٢ theoretical ٢ practical	The student will be able to understand and create an undirected	Configure the initial digital stereoscopic model, obtain the initial	Explanation of lectures using powerpoint and Word	١. Oral questions to attract attention and

		stereoscopic digital model	stereoscopic vision, and store the stereoscopic model. "Creating a nonoriented digital stereo model and saving to an image file" Under Executing Steps, select the left digital image with the "Band combination" setting. And its contrast and brightness intensity, selecting and adjusting the right digital image, orienting and rotating the digital images to be parallel to the line of flight, removing the y-distancing and adjusting the x-distancing, placing the floating point on the surface of the targets, and storing the initial stereoscopic model.	lectures with questions discussion and conclusions	brainstorm ٢. An evaluation that includes attendance and activity inside the hall
١٣+١٢	٢ theoretical ٢ practical	The student will be able to understand	Creating an oriented digital stereo model	Explanation of lectures using	١. Oral questions to attract

		and create a digital vector model	(DSM) and saving it to an image file. Within the implementation of the steps, add digital images to the mock-up model create a “Blok file” and enter the location information. "Projection" Enter the flight altitude, focal length, and digital camera information for the inward and outward orientation of the left and right image respectively, then store it.	powerpoint and Word lectures with questions discussion and conclusions	attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
١٥+١٤	٢ theoretical ٢ practical	The student will be able to understand the process of model verification	Verifying the accuracy of the digital stereoscopic model "Checking the accuracy of the digital stereo model (DSM)"	Explanation of lectures using powerpoint and Word lectures with questions discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
١٧+١٦	٢ theoretical ٢ practical	The student will be able to understand the process of obtaining information	Obtaining information and measurements from the digital ٣D model Through	Explanation of lectures using powerpoint and Word lectures	١. Oral questions to attract attention and brainstorm

		and measurements from the model	stereoscopic vision, measurement is made from a digital stereoscopic model, which includes drawing "points" and determining their coordinates "X, Y, Z" and drawing "polylines" by determining their lengths, inclination, angle, height difference, and the ratio of the starting and end points of the line, the average of the total level, as well as determining Drawing the polygon, calculating the area of the polygon and the lengths of its sides, determining the angles between every three points, and then storing the information.	with questions discussion and conclusions	٢. An evaluation that includes attendance and activity inside the hall
١٨+١٩+٢١	٢ theoretical ٢ practical	The student will be able to understand the toolbar	Identify the program's toolbar features Stereo analyst feature	Explanation of lectures using powerpoint and Word	١. Oral questions to attract attention and

			toolbar"" Drawing and preparing maps from digital stereo models and editing GIS data Collecting and editing ٣D GIS data"" By creating a new project, learning about the groups and types related to landmarks and their characteristics, drawing buildings, roads, rivers, forests, etc. Image landmarks through stereoscopic vision.	lectures with questions discussion and conclusions	brainstorm ٢. An evaluation that includes attendance and activity inside the hall
٢١+٢٢+٢٣	٢ theoretical ٢ practical	The student will be able to understand and create a digital model project from aerial photographs	Creating a project from digital aerial photographs and conducting aerial triangulation and three-dimensional evaluation of the images Creating a new project and performing aerial triangulation and orthorectified the images (by using LPS)	Explanation of lectures using powerpoint and Word lectures with questions discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall

			It is implemented through the following basic steps: -create a new project -Add images to the block file -Define the camera model -measure Gcps and checkpoints -use the automatic tie point collection function -Triangulate the images -Orthorectify the images -View the ortho images -save the block file		
٢٤+٢٥+٢٦	٢ theoretical ٢ practical	The student will be able to understand the digital extraction process	Automatic extraction of the digital model of the Earth's surface Automatic terrain extraction" The above topic can be implemented through the following basic steps: Open an existing block file- - Check the automatically extracted tie - Points in the	Discuss the film material with questions and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall

			point measurement tool - Set DTM extraction options - Edit the general tab contents - View and manipulate images in the image pair tab - Edit the area selection tab contents - Edit the accurate tab contents - Extract and view the DTM- -View the output contour map- - View the output DTM point status image - Save the block file Check the DTM extraction report		
٣١-٢٧	٢ theoretical ٢ practical	The student will be able to understand the applications of digital models	Applications of using (DTM) in the field of information systems Geographic (GIS)), creating the ٣D model, and drawing contour lines and longitudinal sections	Explanation of lectures using powerpoint and Word lectures with questions discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity

			through the (Arc scene) application. As well as in the field of applications Other software such as (surfer) and (Global Mapper)		inside the hall

١١. Course Evaluation

Score distribution out of ١٠٠
٤٠٪ for the first-semester exam + ١٠٪ for tasks such as daily preparation, activity, participation in class, and daily attendance
٤٠٪ for the second-semester exam + ١٠٪ for tasks such as daily preparation, activity, participation in class, and daily attendance
The annual course is ٥٠٪ for the first and second semesters + ٥٠٪ for the final exam

١٢. Learning and Teaching Resources

Required textbooks (curricula books, if any)	No textbooks are available
Main references (sources)	١. "Stereo Analyst", User's guide, Leica Geospatial Imaging, USA, ٢٠٠٨ ٢. "Leica photogrammetry suite project manager", Users guide Leica Geosystem Geospatial Image, USA, ٢٠٠٨ ٣. "LiecaPhotogrametry Suite, Automatic Terran Extraction", Users guide Leica Geosystem Geospatial Image, USA, ٢٠٠٨ ٤. "Manual of photogrammetry", US Army Crops of Engineers. ٥. "Digital photogrammetry A Practical Course", Wilfried Linder, Springer, ٢٠٠٩ ٦. "Baisc of Geomatics", Mario A. Gomarasca, Springer, ٢٠٠٩ ٧. "Manual of Remote Sensing," US Army Crops of Engineers, EM ١١١٠-٢-٢٩٠٧, ٢٠٠٣. ٨. "Introduction to the Physics and

	Techniques
	of Remote Sensing," Charles Elachi, Jakob Van Zyl, John Wily & Sons, ٢٠٠٦. ٩. "Geographic Information Systems "GIS" Foundations and Applications," Dr. Ali Abbas Al- Azzawi, University of Mosul ٢٠٠٩ ١٠. "Geoinformation Remote Sensing, Photogrammetry and Geographic Information System", Gottfried Konecny, Taylor & Francis Group, London, ٢٠٠٣. ١١. ERDAS IMAGINE Tour Guide, Leica Geosystems Geospatial Imaging, USA, ٢٠٠٦ ١٣.Aerial surveying, Labib Nassif, Louise Khalil, Khaled Hilal Sarhan, Technical Education Authority, second edition ١٩٩٩.
Recommended books and references (scientific journals, reports...)	It is not necessary for this stage, as the lectures are very sufficient and cover the curriculum
Electronic Referenc Websites	Various websites on the Internet

Course Description Form

٢٣.	Course Name:
	Mapping technology
٢٤.	Course Code:
٢٥.	Semester / Year:
	First Semester and Second Semester / ٢٠٢٤
٢٦.	Description Preparation Date:
	٣/٣/٢٠٢٤
٢٧.	Available Attendance Forms:
	Classroom
٢٨.	Number of Credit Hours (Total) / Number of Units (Total)
	٣ / ٢
٢٩.	Course administrator's name (mention all, if more than one name)
	Name: Mohammed Abdel Hadi Mohammed Email:
٣٠.	Course Objectives
Course Objectives	The student will be able to learn about the principles of cartography and its integration with specialization topics such as surveying and aerial surveying in preparing maps and raise the student's efficiency (performance) in preparing, designing, drawing, and producing maps.
٣١.	Teaching and Learning Strategies
Strategy	١. Competitive Learning - ٢. Individual learning - ٣. Learning Cooperative Education strategies ١. Direct teaching strategies: The role of the faculty member is to fully control teaching and learning situations in terms of planning, implementation, and follow-up, while the learner is the passive recipient. Attention is focused on the cognitive outcomes of science, including facts, concepts, and theories. Examples include lecturing, using theoretical and practical books, and solving problems. ٢. Directed learning strategies: In which the faculty member plays an active role in facilitating the learner's learning, and the learner is an active participant in the teaching and learning process

	. Attention is focused on learning processes and outcomes. An example is directed discovery. ٣. Indirect teaching strategies: In which the faculty member plays an active role in facilitating the learner's learning, and the learner is an active participant in the teaching and learning process. Attention is focused on learning processes, examples of which include brainstorming, free discovery, and investigation.

٣٢. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
١	٢ Theoretical + ٣ Practical	The student will be able to understand the subject Principles of mapping technology	Principles of mapping technology, its nature, and its relationship to land surveying.	Explanation of lectures using PowerPoint and Word lectures with questions discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
٢	٢ Theoretical + ٣ Practical	The student will be able to understand the subject Types of maps	Types of maps, their characteristics, and classification.	Explanation of lectures using PowerPoint and Word lectures with questions discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall

٣	٢ Theoretical + ٣ Practical	The student will be able to understand the subject scale	The scale and its relationship to the land area are represented on	Explanation of lectures using PowerPoint	١. Oral questions to attract attention and
			maps that are identical in dimensions, the accuracy of the map and its purpose, the details of landmarks, and the number of landmarks represented. And the size of the landmark represented on the map (depending on the scale).	and Word lectures with questions discussion and conclusions	brainstorm ٢. An evaluation that includes attendance and activity inside the hall
٤	٢ Theoretical + ٣ Practical	The student will be able to understand the subject Methods for reducing and enlarging maps	Methods for reducing and enlarging maps (changing the map scale) and methods for measuring distances and areas on maps depending on the scale.	Explanation of lectures using PowerPoint and Word lectures with questions discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall

٥+٦	٢ Theoretical + ٣ Practical	The student will be able to understand the subject of Geographical and quadratic coordinates	Geographical and quadratic coordinates.	Explanation of lectures using PowerPoint and Word lectures with questions discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
٧	٢ Theoretical + ٣ Practical	The student will be able to understand the subject Map projections	Map projections (definition, classification, deviations).	Explanation of lectures using PowerPoint and Word lectures with questions discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
٨	٢ Theoretical + ٣ Practical	The student will be able to understand the subject projections UTM	Cylindrical projections: muscat Mercator (TM) and universal muscat Mercator (UTM)	Explanation of lectures using PowerPoint and Word lectures with questions discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall

٩	٢ Theoretical + ٣ Practical	The student will be able to understand the subject Conic projections	Conic projections, identical Lambertian projection (one standard latitude and two standard latitudes).	Explanation of lectures using PowerPoint and Word lectures with questions discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
١٠	٢ Theoretical + ٣ Practical	The student will be able to understand the subject Bonn projections	Conical projections, equal- area Bonn projections.	Explanation of lectures using PowerPoint and Word lectures with questions discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
١١	٢ Theoretical + ٣ Practical	The student will be able to understand the subject topographic maps	Networking and indexing of topographic maps.	Explanation of lectures using PowerPoint and Word lectures with questions discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall

١٢	٢ Theoretical + ٣ Practical	The student will be able to understand the subject colors in maps	The role and importance of colors in maps, color systems, color value contrast, color sizes	Explanation of lectures using PowerPoint and Word lectures with questions discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
١٣	٢ Theoretical + ٣ Practical	The student will be able to understand the subject Selection of colors	Selection of colours	Explanation of lectures using PowerPoint and Word lectures with questions discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
١٤	٢ Theoretical + ٣ Practical	The student will be able to understand the subject Topographic symbols	Topographic symbols (locational, linear, and cadastral symbols) and their classification	Explanation of lectures using PowerPoint and Word lectures with questions discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
١٥	٢ Theoretical	The student will be able to understand	Layout of topographic maps	Explanation of lecture	١. Oral questions to

				s	
	+ ٣ Practical	the subject Layout of topographic maps	and line specifications, ways to implement it in maps.	using PowerPoint and Word lectures with questions discussion and conclusions	attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
١٦	٢ Theoretical + ٣ Practical	The student will be able to understand the subject Map design	Map design (topographic map elements and their functions) and visual balance between map components.	Discuss the film material with questions and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
١٧	٢ Theoretical + ٣ Practical	The student will be able to understand the subject patterns in various shapes	Map design (design concept and principles), point and line patterns in various shapes	Explanation of lectures using PowerPoint and Word lectures with questions discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall

١٨	٢ Theoretical + ٣ Practical	The student will be able to understand the subject base map	How to prepare the base map (method of engraving and inking (separating and installing colors)).	Explanation of lectures using PowerPoint and Word lectures with questions discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
١٩	٢ Theoretical + ٣ Practical	The student will be able to understand the subject of Copying and printing of maps	Copying and printing of maps.	Explanation of lectures using PowerPoint and Word lectures with questions discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
٢٠	٢ Theoretical + ٣ Practical	The student will be able to understand the subject generalization	Cartographic summarization (generalization) and summarization processes.	Explanation of lectures using PowerPoint and Word lectures with questions discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall

٢١	٢ Theoretical + ٣ Practical	The student will be able to understand the subject Thematic maps	Thematic maps (definition, sources, types), statistical maps, and the application of colors in them.	Explanation of lectures using PowerPoint and Word lectures with questions discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
٢٢	٢ Theoretical + ٣ Practical	The student will be able to understand the subject Charts	Charts, their types, and importance	Explanation of lectures using PowerPoint and Word lectures with questions discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
٢٣	٢ Theoretical + ٣ Practical	The student will be able to understand the subject of digital map	Electronic maps, digital maps, their specifications, types of file extensions, and network and vector data.	Explanation of lectures using PowerPoint and Word lectures with questions discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall

٢٤	٢ Theoretical + ٣ Practical	The student will be able to understand the subject program	Contour maps and the program (installation, interface, menus)	Explanation of lectures using PowerPoint and Word lectures with questions discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
٢٥	٢ Theoretical + ٣ Practical	The student will be able to understand the subject of digital contour	Modifying the specifications of the digital contour map (sorting the main and secondary lines, setting the contour interval, and adding map elements.	Explanation of lectures using PowerPoint and Word lectures with questions discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
٢٦	٢ Theoretical + ٣ Practical	The student will be able to understand the subject of ٣D digital contour	Preparing a ٣d digital contour map	Explanation of lectures using PowerPoint and Word lectures with questions discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall

٢٧	٢ Theoretical + ٣ Practical	The student will be able to understand the subject geographic information	The concept of the geographic information system (gis١٠), its components, interface, and capabilities.	Explanation of lectures using PowerPoint and Word lectures with questions discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
٢٨	٢ Theoretical + ٣ Practical	The student will be able to understand the subject wgs١٩٨٤ system	Preparing a project using the arc catalog program, choosing the wgs١٩٨٤ system, the appropriate location and scope according to the location, and preparing layers according to the feature classes.	Solving the example with the students	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
٢٩	٢ Theoretical + ٣ Practical	The student will be able to understand the subject of Demarcating topographic	Demarcating topographic features and their types in the form of layers and modifying their specifications	Explanation of lectures using PowerPoint and Word lectures with questions discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall

٣٠	٢ Theoretical + ٣ Practical	The student will be able to understand the subject topography of the earth's surface	Interacting with the surfer program and the geographic information system in preparing thematic maps to represent the topography of the earth's surface	Explanation of lectures using PowerPoint and Word lectures with questions discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall

٣٣. Course Evaluation

Score distribution out of ١٠٠
٤٠٪ for the first-semester exam + ١٠٪ for tasks such as daily preparation, activity, participation in class, and daily attendance
٤٠٪ for the second-semester exam + ١٠٪ for tasks such as daily preparation, activity, participation in class, and daily attendance
The annual course is ٥٠٪ for the first and second semesters + ٥٠٪ for the final exam

٣٤. Learning and Teaching Resources

Required textbooks (curricular books, if any)	No textbooks are available
Main references (sources)	١. dr. Hashim Yahya al-massif, principles of cartography, first edition, ١٩٨٢, Baghdad. ٢. dr. Hashim Yahya al-massif applied exercises in cartography, ١٩٨٦. Baghdad. ٣. dr. Khader al-Abadi, cartography, map locations, ١٩٨٠, Baghdad ٤. Robinson,j,s.," Elements of cartography",٥th ed.,١٩٨٠ ٥. Keats,j,s., "Cartography Design and Production",٣rd ed.,١٩٨٠
Recommended books and references (scientific journals, reports...)	It is not necessary for this stage, as the lectures are very sufficient and cover the curriculum
Electronic Referenc Websites	Various websites on the Internet

Course Description Form

٣٥. Course Name:	
Surveying Technologies Department	
٣٦. Course Code:	
Geographic information systems	
٣٧. Semester / Year:	
First Semester and Second Semester / ٢٠٢٤	
٣٨. Description Preparation Date:	
٣/٣/٢٠٢٤	
٣٩.Available Attendance Forms:	
Classroom	
٤٠.Number of Credit Hours (Total) / Number of Units (Total)	
٢ / ٢	
٤١. Course administrator's name (mention all, if more than one name)	
Name: lecturer M. Zahraa Musa Kazem Email: zahraa.musa@atu.edu.iq	
٤٢. Course Objectives	
Course Objectives	• .....**Learn about geographic information systems (GIS).** • **Identify space images, satellites and GPS** • **Identify methods of producing maps and their uses**
٤٣. Teaching and Learning Strategies	
Strategy	Education strategies: ١- Learning and delivery strategy: In which the faculty member plays an active role in facilitating learning and presenting information, facts, and other ideas related to the subject to the learner. ٢-Discussion strategy, in which the faculty member plays an active role in facilitating the learner's learning and adopts it to guide and encourage his students. It can be considered as a development of the rhetorical method through the use of discussion in the form of questions that arouse learners' motivation. This strategy depends on pushing students to think, discuss, express opinions, ask questions and provide answers, and involve them in preparing the lesson, paying attention to research, collecting information and analyzing it, following the following main steps:

	– Setup. - Discussion. - Calendar. ٣- Brainstorming strategy, also called brainstorming, is intended to put the mind in a state of excitement in order to think in all directions and possibilities to reach - in an atmosphere of freedom - the largest possible number of ideas and opinions about a specific problem or topic. Followed by the stage of collecting and discussing proposals. Among the most prominent goals of teaching by adopting this method are: - Making the learner active and effective in educational situations. - Accustom students to respecting different opinions and appreciating others. - Benefiting from other people's ideas and information ٤- E-learning strategy, its applications, the Internet, and project preparation, in which the faculty member plays an active role in facilitating the learner's learning as: "an educational system that relies on interactive information and communications technology such as (the Internet, television channels, e-mail, computers, teleconferencing...) in providing educational programs." Or training for students or trainees at any time and anywhere , using a synchronous or asynchronous method." Learning strategies: ١. Competitive Learning - ٢. Individual learning - ٣. Learning Cooperative

٤٤. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method

	٤	The student will be able to understand the science of geographic information systems	the concept of Geographic Information System (GIS), its components, capabilities, and related programs such as (Arc catalog Arc globe١٠, arc scene١٠, arc Gis Administrator)) and the types of data it deals with (spatial, descriptive , grid and vector data) and learning about Program interface and installation	**Theoretic and pract**	Quarterly yearly
٢	٤	The student will be able to familiarize himself with the program interface	Methods of entering (recalling) data (aerial photographs and satellite images) via Add Data	**Theoretic and pract**	Quarterly yearly
٣	٤	The student will be able distinguish the definition topographic maps	Geometric correction of the topographic map and knowin the amount of permissible error (RMSE) Geometric correction of satellite	**Theoretic and pract**	Quarterly yearly
٤	٤	The student will be able to distinguish and identify satellite images	Geometric correction of the topographic map and knowing the amount of permissible error (RMSE)	**Theoretic and pract**	Quarterly yearly

٥-٦	٤	How to prepare a new project using the Arc Catalog program and define it with the WGS١٩٨٤ global projection system, the appropriate projection and range for the data used, and how to change the projection and range)	he student will be able to apply the definition of the WGS١٩٨٤ global projection system	**Theoretic and pract**	Quarterly yearly
٧-٨	٤	Delineation of layers for the Earth's surface features (locational, linear, and areal), nodes (Edit and delete Vertices) , and the method of storing the layers and the project.	The student will be able to apply drawing tools	**Theoretic and pract**	Quarterly yearly
٩	٤	Apply drawing tools trace tool, End point Arc segment, Point, Intersection tool, Midpoint tool, Split tool, Cut polygon tool). Apply additional drawing tools (Advanced Editing Tools) such as (Copy Feature , Extent Tool, Trim Tool, Line Intersection, Generalized, Smooth)	The student will be able to apply drawing tools	**Theoretic and pract**	Quarterly yearly
١٠	٤	Ways to zoom in and out of features and ways to select drawn features (zoom to select) select feature, Pan to select Features,) and cancel the selection (Delete Select) Add and delete nodes (Add and delete vertices)	The student will be able to apply drawing tools	**Theoretic and pract**	Quarterly yearly
١١	٤	Properties window, including labeling according to the data of the distribution table fields , transparency, viewing the image data source (Spatial reference), displaying the specifications of any feature via (Show Map Tips),	The student will be able to identify the features of the Layers	**Theoretic and pract**	Quarterly yearly

		and the Identify icon.)).			
١٢	٤		Remote Sensing	**Theoretic and pract**	Quarterly yearly
١٣	٤	Preparing thematic maps (contour and field data).	The student will be able to identify the components of a map	**Theoretic and pract**	Quarterly yearly
١٤	٤	Final preparation of all map elements (Layout, Title , Border, Grid, Scale, Legend, Index, Map source.	The student will be able to identify the components of a map	**Theoretic and pract**	Quarterly yearly
١٥	٤	Definition of GPS and GNSS system	The student will be able to understand the operation of satellites	**Theoretic and pract**	Quarterly yearly
١٦-١٧	٤	Identify the types of satellite systems currently available and future	The student will be able to understand the operation of satellites	**Theoretic and pract**	Quarterly yearly

١٨-١٩	٤	Components of the GPS system and an explanation of each part (the space part, command and control systems, as well as the user system part)	The student will be able to understand the student will be able to recognize the working principle of GPS	**Theoretic and pract**	Quarterly yearly
٢٠	٤	Identify the working principle of GPS	The student will be able to recognize the working principle of GPS.	**Theoretic and pract**	Quarterly yearly
٢١	٤	Identify the principles of geodesy (geodes, spheroids, coordinate systems)	The student will be able to learn about space and	**Theoretic and pract**	Quarterly yearly
٢٢-٢٣	٤	, explain monitoring methods using the GNSS system and explain each method , explain the parts of the GNSS system (Leica Viva)	The student will be able to understand the parts of the GNSS system	**Theoretic and pract**	Quarterly yearly
٢٤-٢٥	٤	. How to configure a job and configure a device (GS١٠, GS١٥)	The student will be able to raise beams using the Base GS١٠ device	**Theoretic and pract**	Quarterly yearly
٢٦	٤	Establishing ground control points in the field using Post Processing method and processing the monitored data using (LGO) program.	The student will be able to create ground control points	**Theoretic and pract**	Quarterly yearly
٢٧	٤	Configure the Base GS١٠ and Rover GS١٥ to work using the RTK method and raise beams in this way. Extracting the data monitored in the above manner from the device to the computer and exporting it to the Land Desktop or GIS program.	The student will be able to raise beams using the Base GS١٠ device	**Theoretic and pract**	Quarterly yearly
٢٨	٤	Finding the coordinates of an unknown point (X,Y,Z) and processing them by sending them to correction sites via the Internet).	The student will be able to determine the coordinates	**Theoretic and pract**	Quarterly yearly
٢٩	٤	Access the feature through the layers' spreadsheet fields	The student will be able to understand the Selection	**Theoretic and**	Quarterly yearly

				pract	
		and locations (Selection by attributes & by Location	spreadsheet		
٣٠	٤	Preparing thematic maps (contour and field data).	The student will be able to understand the final output of the maps	**Theoretic and pract**	Quarterly yearly

٤٥. Course Evaluation

Score distribution out of ١٠٠
٤٠٪ for the first semester exam + ١٠٪ for tasks such as daily preparation, activity, participation in class, and daily attendance
٤٠٪ for the second semester exam + ١٠٪ for tasks such as daily preparation, activity, participation in class, and daily attendance
The annual course is ٥٠٪ for the first and second semester + ٥٠٪ for the final exam

٤٦. Learning and Teaching Resources

Required textbooks (curricular books, if any)	No text books are available

Main references (sources)	Recent lectures prepared by me that include all the syllabus Extracted from the following sources: ١- Geographic Information Systems (GIS), General Administration Curriculum Design and Development, Kingdom of Saudi Ara ٢٠١٠ ٢- Foundations of geodesic surveying and GPS, Juma Muhammad Daoud ١٤٣٣/٢٠١٢ ٣- Basics of the Global Positioni System/Ministry of Higher Education and Scientific Research/University Mosul Remote Sensing Center/Prepared Sabah Hussein Ali ٤- Geographic Information Systems (GIS), the complete scientific guide to the ARCVIEW system/ Translated and prepared by Engineer
	Haitham Youssef Zarqta· ٥- A glimpse at Geographic Information Systems (GIS) / Dr. Muhammad Yaqoub Muhammad Saeed / Arab Emirates University· ٦- Lectures by Dr. Muhammad Muhanna Al-Sahli on Introduction to Geographic Information Systems / University of Kuwait / College of Social Sciences It is not necessary for this stage, as the lectures are very sufficient and cover the curriculum Various websites on the Internet

Recommended books and references (scientific journals, reports...)	All sources indicate that sensing is a broad science
Electronic References, Websites	It is not necessary for this stage, as the lectures are very sufficient and cover the curriculum

Zahraa Musa Kazem

Subject teacher

Course Description Form

٤٧. Course Name:
Surveying Technologies Department
٤٨. Course Code:
Remote Sensing
٤٩. Semester / Year:
First Semester and Second Semester / ٢٠٢٤
٥٠. Description Preparation Date:
٣/٣/٢٠٢٤
٥١.Available Attendance Forms:
Classroom
٥٢.Number of Credit Hours (Total) / Number of Units (Total)
٢ / ٢
٥٣. Course administrator's name (mention all, if more than one name)
Name: Assistant lecturer Ammar Ahmed Shakir Email: **ammar.shaker.iba@atu.edu.iq**
٥٤. Course Objectives

Course Objective	• The student should be able to recognize the foundations and principles of remote sensing and identify sources of information • Remote sensing and learning about the basic principles of correcting errors and distortions occurring in space data • Analyzing and interpreting satellite data.....
٥٥. Teaching and Learning Strategies	
Strategy	١ - Processing satellite and aerial images, removing distortions, and improving their quality and accuracy using Erdas. ٢ - The possibility of using aerial photographs in areas that are difficult to study in the field. ٣ - Geometric correction of various types of images

٥٦. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method

١	٢	Introduction to remote sensing includes a historical overview of the science of remote sensing, a definition of remote sensing	Remote Sensing	**Theoretical**	Quarterly yearly
٢-٣	٢	The basic elements of a remote sensing system include a source electromagnetic radiation (Electromagnetic energy, electromagnetic spectrum), ray transmission path (dispersion, absorption and penetration), observed target, sensor	Remote Sensing	**Theoretical**	Quarterly yearly
٤	٢	Components of digital images	Remote Sensing	**Theoretical**	Quarterly yearly
٥-٦	٢	Sources of information in remote sensing , first: photographic sources, whi include (regular black and white films, black and white infrared films, regular color films, near color infrared films, multispectral images)	Remote Sensing	**Theoretical**	Quarterly yearly

٧-٩	٢	Sources of information in remote sensing, second: non-photograph sources, including aerial means (multi-spectral detector, linear infrared thermal detector, microwave sensors). Space mean (manned space means, unmanne space means)	Remote Sensing	**Theoretical**	Quarterly yearly
١٠-١١	٢	Some terms used in remote sensing (resolution), (spatial coverage), (satellite orbit (accuracy)	Remote Sensing	**Theoretical**	Quarterly yearly
١٢-١٣	٢	Satellite satellites include (IKONOS, QUICK BIRD, NOAA, SPOT-٥, LANDSAT-٧) and future satellites	Remote Sensing	**Theoretical**	Quarterly yearly
١٤-١٦	٢	Initial processing of space data includes: ١- Geometric correction ٢- Radiometric correction ٣- Noise removal	Remote Sensing	**Theoretical**	Quarterly yearly
١٧-١٨	٢`	Image Enhancement	Remote Sensing	**Theoretical**	Quarterly yearly
١٩-٢٠	٢	Image Merging and Image Mosaic	Remote Sensing	**Theoretical**	Quarterly yearly

٢١	٢	Interpretation and analysis of imag Traditional analysis and Interpretation includes: size, shape, color tone, pattern, shade , time of day and year, position, texture.	Remote Sensing	**Theoretical**	Quarterly yearly
٢٢-٢٣	٢	How do some phenomena appear on the images (terrain, rocks and soil, natural plants, agricultural crops, transportation, cities and urban areas, archaeological sit	Remote Sensing	**Theoretical**	Quarterly yearly
٢٤-٢٥	٢	Automated analysis and interpretation: includes ١- Supervised classification ٢- Unsupervised classification	Remote Sensing	**Theoretical**	Quarterly yearly
٢٦-٢٧	٢	Various applications in remote sensing: ١- Urban applications: These includ e (drawing detailed maps of cities, studying traffic and parking, planning and distributing parks and gardens, studying land uses, urban expansion and its direction, studying industrial complexes)	Remote Sensing	**Theoretical**	Quarterly yearly

٢٨	٢	٢- Agricultural applications: This includes (study of types of agriculture and crops, study of natural plants, study of plant diseases)	Remote Sensing	**Theoretical**	Quarterly yearly
٢٩	٢	٣- Military applications: include (intelligence, enemy surveillance, pilot training)	Remote Sensing	**Theoretical**	Quarterly yearly
٣٠	٢	Other applications: (study of environmental pollution, study of natural disasters	Remote Sensing	**Theoretical**	Quarterly yearly

٥٧. Course Evaluation

Developing the student's ability to analyze information and interpret the data he obtained through practical experiments and using modern digital programs such as (Erdas, LPS,).

D٢- Using remote sensing techniques and modern programs such as Erdas in extracting plant and water covers, producing topographical and cartographic maps, and directed and undirected analysis.

٥٨. Learning and Teaching Resources

Required textbooks (curricular books, if any)	No text books are available
Main references (sources)	١- Murad Al-Sheikh, Makram Anwar, (١٩٩١), "Remote Sensing Scienc Authority of Technical Institut Ministry of Higher Education a Scientific Research, Iraq. ٢- Al-Daghistani, Nabil Sob (٢٠٠٣), "Remote Sensing Basics a Application," Al-Balqa University. ٣. Swain, P.f. Davis S.M. , (١٩٧ "Remote sensing the quanti approach", New York. ٤. Sabin's, F.F.Jr. (١٩٨٧), "Rem

	sensing Principles a Interpretation", ٢nd Ed. , New Yo ٥.Lillesand, T.M. & Kiefer , R (٢٠٠٠), "Remote sensing and Ima Interpretation", ٤th ed, New York
Recommended books and references (scientific journals, reports...)	All sources indicate that sensing i broad science
Electronic References, Websites	All sources that are within t scope of knowledge, research, a data acquisition that serve t student

Course Description Form

٥٩. Course Name:	
The crimes of the Baath regime in Iraq	
٦٠. Course Code:	
B C I	
٦١. Semester / Year:	
Second Year	
٦٢. Description Preparation Date:	
٣/٣/٢٠٢٤	
٦٣.Available Attendance Forms:	
Theoretical lecture + scientific visits	
٦٤.Number of Credit Hours (Total) / Number of Units (Total)	
٣٠ hours/ ١ unit	
٦٥. Course administrator's name (mention all, if more than one name)	
Name: Alaa Flaiyh Hasan	
٦٦. Course Objectives	
Course Objecti	At the end of the course the student will be able to: ١. □ The student gets to know the concept of crimes. ٢. □ Learn about the dictatorship of the former regime
٣. Teaching and Learning Strategies	
Strateg	At the beginning of every theoretical lecture, there is an introduction to the lecture topic. would include most of the questions that can be asked about the topic and will be answered du

	the lecture. Students will be taken through a discussion in order to find the pre answers to th questions.

٤. Course Structure

Theoretical

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
١st week	١	Introduction to the concept of crimes		Theoretical lecture	oral examination and quiz
٢nd week	١	History of crime committed by the authority		Theoretical lecture	oral examination and quiz
٣rd week	١	Crime departments		Theoretical lecture	oral examination and quiz
٤th week	١	Crime departments.		Theoretical lecture	oral examination and quiz
٥th week	١	Types of international crimes		Theoretical lecture	oral examination and quiz
٦th week	١	Types of international crimes.		Theoretical lecture	oral examination and quiz
٧th week	١	Human rights in Roman civilization.		Theoretical lecture	oral examination and quiz
٨th week	١	Decisions issued by the Supreme Court.		Theoretical lecture	oral examination and quiz
٩th week	١	Decisions issued by the Supreme Court.		Theoretical lecture	oral examination and quiz
١٠th week	١	Decisions issued by the Supreme Court.		Theoretical lecture	oral examination and quiz
١١th week	١	Psychological crimes.		Theoretical lecture	oral examination

					and quiz
١٢th week	١	Mechanisms of psychological crimes.		Theoretical lecture	oral examination and quiz
١٣th week	١	Psychological effects of crimes.		Theoretical lecture	oral examination and quiz
١٤th week	١	Baath crimes against religion		Theoretical lecture	oral examination and quiz
١٥th week	١	Baath crimes against religion.		Theoretical lecture	oral examination and quiz
Week	**Hours**		**Unit or subject name**	**Learning method**	**Evaluation method**
١٦th week	١	Baath prisons.		Theoretical lecture	oral examination
١٧thweek	١	Environmental crimes		Theoretical lecture	oral examination
١٨th week	١	Use of internationally prohibited weapons		Theoretical lecture	oral examination
١٩th week	١	Use of internationally prohibited weapons.		Theoretical lecture	oral examination
٢٠th week	١	scorched earth policy.		Theoretical lecture	oral examination
٢١th week	١	scorched earth policy.		Theoretical lecture	oral examination
٢٢th week	١	scorched earth policy.		Theoretical lecture	oral examination
٢٣th week	١	Mass grave crimes		Theoretical lecture	oral examination
٢٤th week	١	Introduction to mass graves		Theoretical lecture	oral examination
٢٥th week	١	Genocide cemeteries events.		Theoretical lecture	oral examination
٢٦th week	١	Genocide grave sites.		Theoretical lecture	oral examination
٢٧th week	١	Genocide grave sites.		Theoretical lecture	oral examination
٢٨th week	١	Genocide grave sites.		Theoretical lecture	oral examination
٢٩th week	١	Genocide grave sites.		Theoretical lecture	oral examination
٣٠th week	١	Crime departments		Theoretical lecture	oral examination

٥. Course Evaluation

Distributing the score out of ١٠٠ according to the tasks assigned to the student such as daily preparation, dailyoral, monthly, or written exams, reports.....etc

٦. Learning and Teaching Resources	
Required textbooks (curricular books, if an	The main book supply by the ministry higher education
Main references (sources)	Al baath crime's
Recommended books and references (scientific journals, reports...)	

Course Description Form

١. Course Name: Mathematic & spherical triangles	
٢. Course Code:	
٣. Semester / Year:	
First Semester and Second Semester / ٢٠٢٤	
٤. Description Preparation Date:	
٣/٣/٢٠٢٤	
٥. Available Attendance Forms:	
Classroom	
٦. Number of Credit Hours (Total) / Number of Units (Total)	
٢ / ٢	
٧. Course administrator's name (mention all, if more than one name)	
Name: lecturer Salsabeel Kareem Burhan Email: salsabeel.burhan.bi١٢@atu.edu.iq	
٨. Course Objectives	
Course Objectives	Learning about solving equations by matrices Learning solving triangles Learning determining areas by integration. Determining areas by numerical interation Solving spherical triangles
٩. Teaching and Learning Strategies	
Strategy	١. Competitive Learning - ٢. Individual learning -

	٣. Learning Cooperative Education strategies ١. Direct teaching strategies: The role of the faculty member is to fully control teaching and learning situations in terms of planning, implementation, and follow-up, while the learner is the passive recipient. Attention is focused on the cognitive outcomes of science, including facts, concepts, and theories. Examples include lecturing, using theoretical and practical books, and solving problems. ٢. Directed learning strategies: In which the faculty member plays an active role in facilitating the learner's learning, and the learner is an active participant in the teaching and learning process . Attention is focused on learning processes and outcomes . An example is directed discovery. ٣. Indirect teaching strategies: In which the faculty member plays an active role in facilitating the learner's learning, and the learner is an active participant in the teaching and learning process. Attention is focused on learning processes, examples of which include brainstorming, free discovery, and investigation.

١٠. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
١	٢ **Theoretical**	The student will be able to solve equations.	Introduction to equations.	Explanation of lectures using PowerPoint and Word lectures with questions and discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
٢	٢ **Theoretical**	The student will be able to use matrices to solve	**matrices**	Explanation of lectures using	١. Oral questions to attract

		equations		PowerPoint and Word lectures with questions and discussion and conclusions	attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
٣	٢ **Theoretical**	The student will be able to solve equations by determinants	Determinant of matrices	Explanation of lectures using PowerPoint and Word lectures with questions and discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
٤	٢ **Theoretical**	The student will be able to understand Pythagoras theory	Pythagoras theory	Explanation of lectures using PowerPoint and Word lectures with questions and discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
٥	٢ **Theoretical**	The student will be able to solve acute angles	Sine rule	Explanation of lectures using PowerPoint and Word lectures with questions and discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall

٦	٢ **Theoretical**	The student will be able to solve acute triangles	Cosine rule	Explanation of lectures using	١. Oral questions to attract
				PowerPoint and Word lectures with questions and discussion and conclusions	attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
٧	٢ **Theoretical**	The student will be able to solve exercises	Further exercises	Explanation of lectures using PowerPoint and Word lectures with questions and discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
٨	٢ **Theoretical**	The student will be able to understand the circle and its rulres	The circle	Explanation of lectures using PowerPoint and Word lectures with questions and discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall

٩	٢ **Theoretical**	The student will be able to find the area of sector	sectors	Explanation of lectures using PowerPoint and Word lectures with questions and discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
١٠	٢ **Theoretical**	The student will be able to find the arc length	Arc length	Explanation of lectures using	١. Oral questions to attract
				PowerPoint and Word lectures with questions and discussion and conclusions	attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
١١	٢ **Theoretical**	The student will be able to calculate the mean	Introduction to statistics	Explanation of lectures using PowerPoint and Word lectures with questions and discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall

١٢	٢ **Theoretical**	The student will be able to find the standard deviation	Standard deviation	Explanation of lectures using PowerPoint and Word lectures with questions discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
١٣	٢ **Theoretical**	The student will be able to calculate the standard deviation of grouped data	the standard deviation of grouped data	Explanation of lectures using PowerPoint and Word lectures with questions discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
١٤	٢ **Theoretical**	The student will be able to differentiate equations	Introduction to differentiation	Explanation of lectures using	١. Oral questions to attract
				PowerPoint and Word lectures with questions and discussion and conclusions	attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall

١٥	٢ **Theoretical**	The student will be able to learn about the method of differentiation	The basic rule of differentiation	Discuss the film material with questions and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
١٦	٢ **Theoretical**	The student will be able to solve more exercises	Calculating the differentiation	Explanation of lectures using PowerPoint and Word lectures with questions discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
١٧	٢ **Theoretical**	The student will be able to differentiate trigonometric ratio	differentiate trigonometric ratio	Explanation of lectures using PowerPoint and Word lectures with questions discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
١٨	٢ **Theoretical**	The student will be able to understand	Further exercises	Explanation of lectures using	١. Oral questions to attract

				PowerPoint and Word lectures with questions and discussion and conclusions	attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
١٩	٢ **Theoretical**	The student will be able to understand the integration	Calculating the basic integration rules	Explanation of lectures using PowerPoint and Word lectures with questions discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
٢٠	٢ **Theoretical**	The student will be able to solve the integration of equations	Basic rules of integration.	Explanation of lectures using PowerPoint and Word lectures with questions discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
٢١	٢ **Theoretical**	The student will be able to find the integration of trigonometric equations	Integration of trigonometric ratio	Explanation of lectures using PowerPoint and Word lectures with questions discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall

٢٢	٢ **Theoretical**	The student will be able to solve integration	Further excursuses.	Explanation of lectures using	١. Oral questions to attract
				PowerPoint and Word lectures with questions and discussion and conclusions	attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
٢٣	٢ **Theoretical**	The student will be able to find the area under the curve.	Some applications of integration	Explanation of lectures using PowerPoint and Word lectures with questions discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
٢٤	٢ **Theoretical**	The student will be able to calculate the area under curves	area under curves	Explanation of lectures using PowerPoint and Word lectures with questions discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall

٢٥	٢ **Theoretical**	The student will be able to find the area between curves	area between curves	Explanation of lectures using PowerPoint and Word lectures with questions discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
٢٦	٢ **Theoretical**	The student will be able to find areas by integration	Further exercises	Explanation of lectures using	١. Oral questions to attract
				PowerPoint and Word lectures with questions and discussion and conclusions	attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
٢٧	٢ **Theoretical**	The student will be able to find areas by numerical integration	Numerical integration	Solving the example with the students	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall

٢٨	٢ **Theoretical**	The student will be able to find the area	Solving examples for numerical integration	Explanation of lectures using PowerPoint and Word lectures with questions discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
٢٩	٢ **Theoretical**	The student will be able to understand spherical triangles	Solving spherical triangles	Explanation of lectures using PowerPoint and Word lectures with questions discussion and conclusions	١. Oral questions to attract attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall
٣٠	٢ **Theoretical**	Types of Spherical Triangles	Spherical triangles	Explanation of lectures using	١. Oral questions to attract
				PowerPoint and Word lectures with questions and discussion and conclusions	attention and brainstorm ٢. An evaluation that includes attendance and activity inside the hall

١١. Course Evaluation

Score distribution out of ١٠٠
٤٠٪ for the first-semester exam + ١٠٪ for tasks such as daily preparation, activity, participation in class, and daily attendance
٤٠٪ for the second-semester exam + ١٠٪ for tasks such as daily preparation, activity, participation in class, and daily attendance
The annual course is ٥٠٪ for the first and second semesters + ٥٠٪ for the final exam

١٢. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	No textbooks are available
Main references (sources)	١- Quantity Surveying / Muwafaq Nasser Al-Saour / Ministry of Education / Technical Institutes Foundation ٢- Quantity Surveying / Sami Miri Kazem, Abdel Karim Al-Shamaa / Ministry of Education / Authority of Technical Institutes, ١٩٩٤. ٣- Construction Materials / Jalal Bashir Sarsam / Ministry of Education / Authority of Technical Institutes, ١٩٩٢. ٤- Estimation and specifications of construction works / Ghanem Abdel Rahman Bakr, ١٩٨٥. Recent lectures prepared by me that include all the syllabus Extracted from the following sources: ١. Iraqi Guide to Building Materials DPA ٣١١: Ministry of Construction, Housing, Municipalities and Public Works - Department of Buildings Ministry of Planning - Central Organization for Standardization and Quality Control, ٢٠١٧ edition ٢. Resident Engineer Guide for Construction Projects ٢٠١٥ Ministry of Construction and Housing
	٤. The standard guide to price analysis for the building and construction sector, Part One, Civil Works
Recommended books and references (scientific journals, reports...)	It is not necessary for this stage, as the lectures are very sufficient and cover the curriculum
Electronic Reference Websites	Various websites on the Internet