

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



# **Academic Program and Course Description Guide**

**2024**

## **Introduction:**

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

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

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

## **Concepts and terminology:**

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

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

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

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

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

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

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

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



## **1. Program Vision**

**Upgrading to a distinguished and renewable Department in the education and training of all surveying techniques at a high-quality level contributes to the qualification of highly qualified national human cadres. The ambition is for the department to be a pioneer in providing educational and specialized programs in the field of space technologies and to be a role model at the local and global levels.**

## **2. Program Mission**

- Preparing graduates with high professional skills and ethics.**
- Instill the spirit of acquiring knowledge in the student to serve the needs of society.**
- Educational guidance and consolidation of national identity.**
- Serving the community by providing engineering consultations, studies and specialized training courses.**

## **3. Program Objectives**

- Preparing and qualifying graduates who are able to assume their technical responsibilities at work sites by playing an important role in the implementation of development plans.**
- Increasing scientific experience by using computer technologies and preparing technical reports in line with communication skills with others and instilling a spirit of teamwork among students.**
- Preparation, compilation, design and production of maps of all types of land surveys using modern methods.**
- Conducting topographic, engineering, cadastral surveys, aerial surveys and remote sensing using GIS technologies.**

#### 4. Program Accreditation

Does the program have program accreditation? And from which agency?

#### 5. Other external influences

Is there a sponsor for the program?

#### 6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements	-	-		
College Requirements				
Department Requirements	125	125		
Summer Training				
Other				

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

First semester/first year

#### 7. Program Description

Year/Level	Course Code	Course Name	Credit Hours	
			theoretical	practical
2023-2024/First		Plane Surveying1	4	6
2023-2024/First		Fundamentals of Aerial Photogrammetry Survey	2	3
2023-2024/First		1 Mathematics 1	2	-
2023-2024/First		Fundamentals of Remote Sensing	2	-
2023-2024/First		Geomorphology	1	-
2023-2024/First		Computer Fundamentals	-	2
2023-2024/First		Quantity Surveying1	2	-
2023-2024/First		Human and Rights	2	-
2023-2024/First		Mechanical workshop	-	3
2023-2024/First		Arabic language	2	-

Second Semester /first year

Year/Level	Course Code	Course Name	Credit Hours	
			theoretical	practical
2023-2024/First		Plane Surveying2	4	6
2023-2024/First		Fundamentals of Aerial Photogrammetry Survey	2	3
2023-2024/First		1 Mathematics 2	2	-
2023-2024/First		Fundamentals of Remote Sensing 2	2	-
2023-2024/First		Computer Engineering Drawing	-	3
2023-2024/First		Quantity Surveying 2	2	-
2023-2024/First		Human and Rights	2	-
2023-2024/First		Mechanical workshop	-	3
2023-2024/First		English language 1	2	-
2023-2024/First		Summer Training	-	240

First semester, second year

Year/Level	Course Code	Course Name	Credit Hours	
			theoretical	practical
<u>Second</u>				
<u>Second</u>		<u>Plane Surveying3</u>	<u>2</u>	<u>6</u>
<u>Second</u>		<u>Fundamentals of Digital photogrammetry</u>	<u>2</u>	<u>3</u>
<u>Second</u>		<u>Cartography Techinque</u>	<u>2</u>	-
<u>Second</u>		<u>Engineering Surveying</u>	<u>2</u>	<u>3</u>
<u>Second</u>		<u>Computervapplications (Civil)1</u>	-	<u>3</u>
<u>Second</u>		<u>Geographic Information System</u>	<u>1</u>	<u>2</u>
<u>Second</u>		<u>English Language 2</u>	<u>2</u>	-
<u>Second</u>		<u>project</u>	-	<u>2</u>

Second semester/second year

Year/Level	Course Code	Course Name	Credit Hours	
<u>Second</u>		<u>Plane Surveying4</u>	<u>2</u>	<u>6</u>
<u>Second</u>		<u>applications of Digital photogrammetry</u>	<u>2</u>	<u>3</u>
<u>Second</u>		<u>Cartography Techinque</u>	<u>2</u>	-
<u>Second</u>		<u>cadastral Surveying</u>	<u>2</u>	<u>3</u>
<u>Second</u>		<u>Computer applications (Civil) 2</u>	-	<u>3</u>
<u>Second</u>		<u>Global Navigation Satellite system</u>	<u>1</u>	<u>2</u>
<u>Second</u>		<u>Professional ethics</u>	<u>2</u>	-
<u>Second</u>		<u>project</u>	-	<u>2</u>

<b>8. Expected learning outcomes of the program</b>	
<b>Knowledge</b>	
	1-to know the most important principles and concepts of space. 2-to determine the main functions of the surveyor. 3-to explain the concepts of space 4-to apply the concepts of space with real-life examples and study cases. 5-analyzes the validity of theories and cadastral with practical reality. 6-to indicate his opinion on Cadastral concepts.
<b>Skills</b>	
	1-skills of using references and terminology. 2-skills in collecting and analyzing data on the topic. 3-skills of collecting and analyzing data and how to use them in surveying works. 4-training and personal development skills on how to apply surveying Science in various fields. 5-skills of preparing Cadastral concepts suitable for use in various fields.
<b>Ethics</b>	
Learning Outcomes 4	Learning Outcomes Statement 4
Learning Outcomes 5	Learning Outcomes Statement 5

<b>9. Teaching and Learning Strategies</b>
1-using the lecture method and active participation of students. 2-use the question and answer method. 3-participation of students in the presentation of ideas.

<b>10. Evaluation methods</b>
Weekly, monthly, daily exams and year-end exam.



## 11. Faculty

### Faculty Members

Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
Professor	Geomorphology	Geomorphology				1
lecturer	Engineering of Surveying Techniques	Engineering of Surveying Techniques			1	
lecturer	Geomatics engineering	Geomatics engineering			1	
Assistant lecturer	Urban planning	Urban planning			1	
Assistant lecturer	Geomatics engineering	Geomatics engineering			2	
Assistant lecturer	Engineering of Surveying	Engineering of Surveying			1	

### Professional Development

#### Mentoring new faculty members

Briefly describes the process used to mentor new, visiting, full-time, and part-time faculty at the institution and department level.

#### Professional development of faculty members

Briefly describe the academic and professional development plan and arrangements for faculty such as teaching and learning strategies, assessment of learning outcomes, professional development, etc.

## 12. Acceptance Criterion

(Setting regulations related to enrollment in the college or institute, whether central admission or others)

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

- scientific department
- Register
- Subject teacher

14. program Development plan

Holding courses and workshops for the department staff that will develop skills and capabilities, encourage scientific innovation, and participate in scientific exhibitions at the university and country levels for teachers on the one hand and students on the other hand, so that the department is among the distinguished departments at the institute and university levels.



Program Skills Outline															
				Required program Learning outcomes											
Year/Level	Course Code	Course Name	Basic or optional	Knowledge				Skills				Ethics			
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
2023-2024		Plane Surveying1													
2023-2024		Fundamentals of Aerial Photogrammetry Survey													
2023-2024		Fundamentals of Remote Sensing													
2023-2024		Quantity Surveying 1													

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

## Course Description Form

<b>1. Course Name:</b>	
Surveying	
<b>2. Course Code:</b>	
Plane surveying /1	
<b>3. Semester / Year:</b>	
2023 / 2024	
<b>4. Description Preparation Date:</b>	
7/2/2024	
<b>5. Available Attendance Forms:</b>	
Presence	
<b>6. Number of Credit Hours (Total) / Number of Units (Total)</b>	
(240) study hours (8) hours per week / number of units (8)	
<b>7. Course administrator's name (mention all, if more than one name)</b>	
Name: salih suliman kshash Email: <a href="mailto:salih.suliman@mtu.edu.iq">salih.suliman@mtu.edu.iq</a>	
<b>8. Course Objectives</b>	
<b>Course Objectives</b>	<ul style="list-style-type: none"> <li>• The student understands the basics of flat space and the types and divisions of space</li> <li>• Knowledge of set-up and drop-off operations</li> <li>• Knowledge of measuring distances</li> <li>• Knowledge of drawing scale, its types, and how to draw scales</li> <li>• Knowing the obstacles and their types</li> </ul>
<b>9. Teaching and Learning Strategies</b>	
<b>Strategy</b>	<ul style="list-style-type: none"> <li>• lecture</li> <li>• Discussion and dialogue</li> <li>• Brainstorming</li> <li>• Use presentation and presentation method</li> <li>• Drawing illustrative diagrams</li> </ul>

10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1		The practical part is recognition On user devices	Introduction to surveying The most important definitions	<b>Presence</b>	Daily Exams
2,3		The practical part practical exercises converting between measurement systems	Units of longitudinal measurement and angle measurement systems	<b>Presence</b>	
4,5		The practical part is Practical exercises on how to Scale drawing Determine the radius on it	scale	<b>Presence</b>	And monthly
6,7		The practical part is Applied and practical exercises To measure distances flat land	Measure distance on Flat land and uneven)	<b>Presence</b>	And its finality
8,9		The practical part is Applied and practical exercises To measure distances Sloping land	Measure distance on land Italics	<b>Presence</b>	And practical reports
10,11		The practical part is Applied and practical exercises To set up and drop columns	Accommodation and projection	<b>Presence</b>	
12		The practical part is Applied and practical exercises To measure distances with impediment	Possible obstacles while measuring distance: 1. Orientation obstacles: Not seeing the beginning and the end from a middle point. 2. Measurement obstacles (when the circumference is around the extended beam).	<b>Presence</b>	And daily post

13		The practical part is Applied and practical exercises For tape scann operations	Obstacles to guidanc and measurement. Clear area details (polygon and paddi using tape	<b>Presence</b>	
14,15		exercises	using tape Bug fixes in Tape	<b>Presence</b>	
<b>11. Course Evaluation</b>					
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc					
<b>12. Learning and Teaching Resources</b>					
Required textbooks (curricular books, if any)					
Main references (sources)			<b>1- Rymond E .davis Joe Wkelly. Elementary plan surveying</b> <b>2- Singh , Narindr Surveying _Tata MC Graw – Hill publishing Company limited – New Delhi 1982</b> <b>3- زياد عبد الجبار البكر ، ابراهيم داود علوان المساحة -4</b> <b>رزان ابراهيم 2011 ، اصول المساحة عمان- مكتبة العملي.</b> <b>-5</b> <b>يوسف صيام 2001 ، المساحة – كلية الهندسة الجامعة المجموع.</b> <b>-6</b> <b>ياسين عبيد احمد 1990 المساحة الهندسية – كلية</b>		
Recommended books and references (scientific journals, reports...)					
Electronic References, Websites					





## 10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The first	5	The student understands the lesson	A historical overview of the history of aerial surveying and distance sensing, its development and uses at the present time, and the relationship of aerial surveying to distance sensing. Types of projections and types of images	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
The second	5	The student understands the lesson	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 on the aerial photographs.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
Third -	5	The student understands the lesson	Vertical aerial photographs, geometric relationships, coordinate systems, scale, average. The scale of vertical aerial photographs over ground and ground with different levels and drawing scale	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
Fourth:	5	The student understands the lesson	Other methods for calculating the scale of vertical aerial photographs, ground coordinates from vertical aerial photographs and calculating horizontal and diagonal distances between points.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
Fifth	5	The student understands the lesson	Displacement resulting from terrain and height	Lecture theoretical	Discussion solving exercises, Q

			calculations.		Homework
sixth	5	The student understands the lesson	Stereo vision and its foundations, depth perception using both eyes, stereo vision using images, its conditions, and ways to see the stereoscopic model using images. Using a mirrored stereoscope using the base line method for the two images. Y-divergence, vertical amplification.	Lecture theoretical	Discussion and solving exercises Quiz, Homework
Seventh	5	The student understands the lesson	Stereoscopic distance the relation between distance height of point distance difference sectorian methods of measuring distance, stereom and how to work it.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
Eighth	5	The student understands the lesson	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.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
Ninth	5	The student understands the lesson	Types of digital and analog aerial photography machines	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
Tenth	5	The student understands the lesson	Angle of field of view and classification of aerial photography machines in relation to the angle of field of view and its uses. Parts of the aerial	Lecture theoretical	Discussion and solving exercises, Quiz, Homework

			photography machine.		
Eleventh	5	The student understands the lesson	Oblique aerial photographs, rotational guidance in the system (incline, roll, yaw), auxiliary axes system for oblique photographs, scale of oblique photographs, ground coordinates from oblique photographs, geometric analysis of oblique aerial photographs.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
Twelfth	5	The student understands the lesson	Flight line design, flight altitude, local scale, longitudinal and lateral overlap, base line, calculating the total number of images of an area.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
Thirteenth	5	The student understands the lesson	Mosaic, its advantages, disadvantages and uses - types.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
Fourteenth	5	The student understands the lesson	A historical overview of the history of aerial surveying and distance sensing, its development and uses at the present time, and the relationship of aerial surveying to distance sensing. Types of projections and types of images	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
Fifteenth	5	The student understands the lesson	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 on the aerial photographs.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework

## 11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports ... etc

## 12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	1- Aerial photogrammetry - Labib Nassif, Technical Education Authority, second edition, 1999. 2- Manual of photogrammetry-American society of photogrammetry By Moffitt. 3 Elements of photogrammetry – Paul R.wolf 2nd Edition. 4. Erdas ImagineTour Guides, Leica Geosystems Geospatial Imaging, 2006.
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

## Course Description Form

<b>1. Course Name:</b>	
Mathematics 1	
<b>2. Course Code:</b>	
<b>3. Semester / Year:</b>	
Semester 1/2023–2024	
<b>4. Description Preparation Date:</b>	
Academic year 2023-2024	
<b>5. Available Attendance Forms:</b>	
Attend mandatory weekly	
<b>6. Number of Credit Hours (Total) / Number of Units (Total)</b>	
2theory * 15 weeks	
<b>7. Course administrator's name (mention all, if more than one name)</b>	
Name: Fatima Asaad Tayeb Email: fm.alkobaisi@gmail.com	
<b>8. Course Objectives</b>	
<b>Course Objectives</b>	<ul style="list-style-type: none"> <li>understand the key concepts and knowledge of the rules and the laws of mathematics and its application in space technology.</li> <li>illustrate mathematical ideas through the representation of geometric shapes in both the level and the leisure and study some of the algebraic structure.</li> <li>the subject of mathematics that are designed to clarify the practical and philosophical challenges of the current engineering and mathematics that spurred this constant evolution, as well as providing basic concepts of differentiation and integration useful for further study of the science of engineering and applied mathematics in the scientific and practical field</li> <li>students acquire the skills to resolve issues.</li> </ul>
<b>9. Teaching and Learning Strategies</b>	
<b>Strategy</b>	<ul style="list-style-type: none"> <li>Assess students individually by giving the opportunity to participate through a classroom answering questions.</li> <li>Student Assessment collectively through daily exams quizzed process and theory.</li> <li>Student Assessment collectively by giving extra- curricular duties such as writing reports or those that concerning .</li> <li>The end of the first semester exams (half a year) and the second chapter and final exams for the first round and the second</li> </ul>

## 10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2 theoretical hours	The student understands the lesson	A review of solving equations, first degree equation, second degree equation using the general law. Solve two first-degree equations graphically and graphically	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
2	2 theoretical hours	The student understands the lesson	Matrices, their types, addition and subtraction of matrices	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
3	2 theoretical hours	The student understands the lesson	Matrix transpose, matrix inverse, matrix multiplication	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
4	2 theoretical hours	The student understands the lesson	Determinants, binary and triple	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
5	2 theoretical hours	The student understands the lesson	Solve simultaneous equations using determinants.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
6	2 theoretical hours	The student understands the lesson	Equation of a line, perpendicularity of two lines, parallelism of two lines, distance of a point from a line, distance between two points.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
7	2 theoretical hours	The student understands the lesson	Triangles, some important laws in trigonometric ratios, solving a right triangle.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
8	2 theoretical hours	The student understands the lesson	Solving a triangle, some laws used in solving a triangle, the law of sines and cosines.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
9	2 theoretical hours	The student understands the lesson	Various exercises in solving the triangle.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
10	2 theoretical hours	The student understands the lesson	Circular sector, circular segment, finding area and perimeter.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
11	2 theoretical hours	The student understands the lesson	Derivative, polynomial functions, implicit functions.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework

12	2 theoretical hours	The student understands the lesson	Derivative of trigonometric functions	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
13	2 theoretical hours	The student understands the lesson	Derivative applications / finding the tangent equation	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
14	2 theoretical hours	The student understands the lesson	Integration, integration of algebraic functions.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
15	2 theoretical hours	The student understands the lesson	Integration of trigonometric functions.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework

## 11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

## 12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	George B. Thomas, Jr., "Thomas 'Calculus", 12th edition, Addison Wesley, Pearson Education, Inc, 2010.
Main references (sources)	Institute library for additional resources for the curriculum
Recommended books and references (scientific journals, reports...)	- All sound scientific journals that must do in the broad sense of mathematics and spherical triangles
Electronic References, Websites	Sites on the Internet pertaining to mathematics and spherical triangles

## Course Description Form

1. Course Name:	
Principles of Remote Sensing	
2. Course Code:	
3. Semester / Year:	
1st Semester 2023–2024	
4. Description Preparation Date:	
5/2/2024	
5. Available Attendance Forms:	
Blended	
6. Number of Credit Hours (Total) / Number of Units (Total)	
30 Hours (2 hours per week)	
7. Course administrator's name (mention all, if more than one name)	
Name: Asst.Lec. Ali Hussein Alwan	
Email: ali_hussein@mtu.edu.iq	
8. Course Objectives	
Course Objectives	<ul style="list-style-type: none"><li>• Knowledge of the foundations and principles of remote sensing.</li><li>• Knowledge of remote sensing techniques.</li><li>• Knowledge of the components of digital images and the meaning of image resolution.</li><li>• Knowledge of sources in remote sensing.</li><li>• Knowledge of satellites used in remote sensing.</li><li>• Knowledge of diverse applications in remote sensing.</li></ul>
9. Teaching and Learning Strategies	
Strategy	<ul style="list-style-type: none"><li>• Use the presentation method.</li><li>• Draw illustrative diagrams.</li><li>• The method of brainstorming.</li></ul>



10. Course Structure						
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method	
1	2	Introduction to Remote Sensing.	Introduction to Remote Sensing.	Theory	Monthly and final exams.	
2-3	2	Basic Elements of the Remote Sensing System.	Basic Elements of the Remote Sensing System.	Theory		
4-5	2	Electromagnetic Energy.	Electromagnetic Energy.	Theory		
6	2	Remote Sensing Platforms.	Remote Sensing Platforms.	Theory		
7	2	Characteristics of Aerial Photo and Satellite Imagery.	Characteristics of Aerial Photo and Satellite Imagery.	Theory		
8	2	Sources of Information in Remote Sensing, Photogrammetric Sources.	Sources of Information in Remote Sensing, Photogrammetric Sources.	Theory		
9	2	Sources of Information in Remote Sensing, Non-Photogrammetric Sources.	Sources of Information in Remote Sensing, Non-Photogrammetric Sources.	Theory		
10-11	2	Some Terms Used in Remote Sensing.	Some Terms Used in Remote Sensing.	Theory		
12	2	The satellites.	The satellites.	Theory		
13	2	Classification of Satellites by Spatial Resolution.	Classification of Satellites by Spatial Resolution.	Theory		
14-15	2	Diverse Applications in Remote Sensing.	Diverse Applications in Remote Sensing.	Theory		
11. Course Evaluation						
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc.						
12. Learning and Teaching Resources						

Required textbooks (curricular books, if any)	
Main references (sources)	<p>1. مراد الشبيخ، مكرم انور، (١٩٩١)، علم التحسس البعيد، هيئة المعاهد الفنية، وزارة التعليم العالي والبحث العلمي، العراق.</p> <p>2. د. جمعة محمد داود، (2015)، أسس وتطبيقات الاستشعار عن بعد، القاهرة، جمهورية مصر العربية.</p> <p>3. د. محمد احمد مياس، (٣١٠٢)، أسس الاستشعار عن بعد، دار جامعة صنعاء للطباعة والنشر، اليمن.</p> <p>4. د. عصمت محمد الحسن، (٧٠٠٢)، معالجة الصور الرقمية ني الاستشعار عن بعد، كلية الهندسة، جامعة الملك سعود المملكة العربية السعودية.</p> <p>5. "Principles of remote sensing", University of Technology Building &amp; Construction Department Remote Sensing &amp; GIS lecture, Iraq.</p> <p>6. Dr. Hussein Hameed Karim "Digital Image Processing", University of Technology Building &amp; Construction, Iraq.</p>
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

## Course Description Form

1. Course Name:

Geomorphology

2. Course Code:

3. Semester / Year:

First semester 2023/2024

4. Description Preparation Date:

2024

5. Available Attendance Forms:

6. Number of Credit Hours (Total) / Number of Units (Total)

(15) Study hours at a rate of (1) hour per week / Number of units (1)

7. Course administrator's name (mention all, if more than one name)

Name: baydaa ismail ibraim

Email: baydaa.ismail@mtu.edu.iq

8. Course Objectives

**Course Objectives**

- The student will be able to recognize the geomorphological phenomena that he surveys
- And draw it
- To learn about geomorphological phenomena on geological maps and from aerial photographs
- Identify the types of sediments, minerals, and atmospheres
- Identifying and preventing the movement of land masse

9. Teaching and Learning Strategies

**Strategy**

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning	Evaluation
1	1	Learn about the science of the Earth's surface and its relationship to other sciences	Introduction to the subject of Earth's surface science and its relationship to other sciences and surveying	My presence	
2	1	Identify the main features of the Earth's crust The interior of the Earth and its atmosphere	Main features of the Earth's crust, interior and atmosphere		Continuous daily tests and evaluation, in addition to a exam
3	1	Identify minerals, their natural properties with examples	Minerals, their natural properties with examples		
4	1	Identify rocks and their types	Rocks, their definition, types		
5	1	The rock cycle in nature, igneous rocks, sedimentary rocks, their types, clastic, chemical and biological	Learn about the rock cycle in nature		
6	1	Identify sedimentary rocks and their types	Sedimentary, its types, clastic, chemical and biological transformation, its types,		
7	1	Identify metamorphism, its types, metamorphic rocks Its texture and types	Metamorphism, its types, metamorphic rocks, their texture and types		
8	1	Identify weathering and its types, mechanical and chemical and climate impact	Weathering, its types, mechanical, chemical and climate effects		
9	1	Identify the soil, its cross-section, and the factors controlling its formation Its types and soil classification triangle	Soil, its cross-section, factors controlling formation, types, soil classification triangle.		
10	1	Learn about contour maps	Contour maps, their definition		
11	1	Learn how to interpret topographic phoneme	Interpreting topographical phenomena from contour maps, geological maps, the importance, and drawing inclined layers on contour maps.		
12	1	Identifying fictitious geological maps and drawing inclined layers on contour maps	Geological maps, their importance drawing inclined layers on contour maps		
13	1	Identifying erosion, rivers, and the geomorphological features of the	Erosion, rivers, geomorphological characteristics of the river erosion		

		river erosion process	process.		
14	1	Identify the geomorphological phenomena of the sedimentation process Rivers, river drainage systems	Geomorphological phenomena of the river sedimentation process, river drain systems		
15	1	Learn about interpreting geomorphological phenomena from images Air	Interpretation of geomorphological phenomena from aerial photographs		

## 11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

## 12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	<p>1- Principles of engineering geology and their applications, Majeed Abboud Jassim Al-Taie, University of Basra, 2001</p> <p>2- Engineering Geology, Miqdad Hussein Ali, Basem Rushdi Hijab, Sinan Hashim Al-Jassar, University of Baghdad, 1990</p> <p>3- Foundations of Geology for Engineers, Kenana Muhammad Thabet, Muhammad Omar Al-Asho, University of Mosul, 1993</p> <p>4- Principles of Geology and Geomorphology, Ghada Mohamed Selim, Muhammad Mahdi Abbas, Fadel Nomas Al-Saadouni, Institutional Foundation Artistic, 198</p>
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

## Course Description Form

<b>1. Course Name:</b>	
computer applications	
<b>2. Course Code:</b>	
<b>3. Semester / Year:</b>	
First course / 2023–2024	
<b>4. Description Preparation Date:</b>	
4/2/2024	
<b>5. Available Attendance Forms:</b>	
My presence	
<b>6. Number of Credit Hours (Total) / Number of Units (Total)</b>	
2 hours, number of units: 2	
<b>7. Course administrator's name (mention all, if more than one name)</b>	
Name: Morteda A. Hashem Email: Morteda.abbas@mtu.edu.iq	
<b>8. Course Objectives</b>	
<b>Course Objectives</b>	<p><b>1- Teaching the student the components of the calculator, studying the Windows 7 operating system, and learning about the system’s commands and windows.</b></p> <p><b>2- Teaching the student to write and prepare texts in Word 2010.</b></p> <p><b>3- Teaching the student to create tables, manage graphic objects and geometric shapes, and deal with databases in Excel 2010.</b></p> <p><b>4- Teaching the student to prepare slides for text and graphic shapes and prepare an interactive presentation of the slides in the Power Point 201 program.</b></p>
<b>9. Teaching and Learning Strategies</b>	
<b>Strategy</b>	<ul style="list-style-type: none"> <li>• The teacher introduces students to the most important main applications of ready-made software applications.</li> <li>• Giving students extracurricular assignments that require them to exert skills and self-explanations in experimental ways.</li> <li>• Interrogating students through discussion sessions by asking thinking questions (how, why, when, where, which) for specific topics.</li> <li>• Using the method of brainstorming and feedback in order to activate the accumulated experiences of students by linking the subjects taken in the previous academic stages and linking them to the new ones.</li> </ul>

## 10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The first	2	The student works on the calculator and how to deal with a system to operate Windows 7 and work on the system's commands and windows.	- A general introduction to the basics of the computer and its hardware and software components - Windows 7 operating system (system operation, desktop components, icon concept, changing desktop arrangement, controlling screen size and screen resolution, Taskbar and its components, controlling time, date and sound, exiting the system, turning off the computer)	applied	evaluation
The second	2	The student works on the calculator and how to deal with a system to operate Windows 7 and work on the system's commands and windows.	- The concept of the window for any program and identifying its main components, changing the size of windows, moving them, closing them, and moving between open windows - Get to know the Start menu and its contents	applied	evaluation
Third -	2	The student works on the calculator and how to deal with a system to operate Windows 7 and work on the system's commands and windows.	- Folders and files (created, moved, cloned, renamed, deleted, retrieved from the trash, emptying the trash) - Use the Find command to select a file or folder - The concept compressing files folders and decompress them	applied	evaluation
Fourth:	2	The student works on the calculator and how to deal with a system to operate	- Identify the My Computer icon, its characteristics, and basic information about the computer (processor speed,	applied	evaluation

		Windows 7 and work on the system's commands and windows.	processor type, memory size, operating system and version number)		
Fifth	2	The student works on the calculator and how to deal with a system to operate Windows 7 and work on the system's commands and windows.	- Control Folder Option display options for files and folders Control Panel <b>settings</b> ) [System and security, Network and internet,] [Appearance and personalization, User accounts and family safety,] [Programs(uninstall a program), Hardware and sound]	applied	evaluation
sixth	2	The student works on writing and preparing texts in Word 2010.	Word 2010 program - Introduction to the program, calling the program, getting to know the main interface and its elements (Command bar, Ribbons, Tools, name of the default work file, changing the name, changing the field of view measurement, saving a new file for the first time)	applied	evaluation
Seventh	2	The student works on writing and preparing texts in Word 2010.	- Main text Word Art (insert text, change text, rotate text, change font size, Format bar) General settings (flip the page from portrait to landscape mode, create a frame for the page, show the ruler, page numbering, Header & Footer, print preview, printing)	applied	evaluation
Eighth	2	The student works on writing and preparing texts in Word 2010.	- Text } 1- Direct text (writing text, text settings, adding symbols and mathematical equations)	applied	evaluation
Ninth	2	The student works on writing and preparing	- Tables (drawing a table, changing the size of a table,	applied	evaluation



		texts in Word 2010.	inserting a line or column into a table, merging several cells in the table, dividing the cell, arranging the lines in the table in ascending and descending order, deleting lines and columns)		
Tenth	2	The student works on creating tables, managing graphic objects and geometric shapes, and dealing with databases in Excel 2010.	Excel 2010 - Run the program, get to know the main interface and bars - Create a table (entering values for cells, moving between cells, enlarging and reducing cells, merging cells, selecting cells, lines and columns, selecting all pages, moving cells, inserting a line or column, erasing a line or column) (writing code, changing the formula of a cell content, searching for a value, replacing values, replacing sorting, filtering, fixed aspects, freeze panes)	applied	evaluation
Eleventh	2	The student works on creating tables, managing graphic objects and geometric shapes, and dealing with databases in Excel 2010.	- Save the file -Modify text formatting from the Home bar - Draw a frame for Borders cells and modify the settings for the frame - Change the name of a page, add a new page, delete a page, move or copy a page, protect a page from modifications, hide the page	applied	evaluation
Twelfth	2	The student works on creating tables, managing graphic objects and geometric shapes, and dealing with databases in	- Change the direction of titles (make the page from right to left) - Create a series - Create a function (create a function manually, use ready-made mathematical,	applied	evaluation

		Excel 2010.	statistical and logical functions) -Print settings - Data management		
Thirteenth	2	The student works on creating tables, managing graphic objects and geometric shapes, and dealing with databases in Excel 2010.	- Dealing with databases (importing data from the Internet, importing data from databases, importing data from text files) Object management (images, Clip Art, geometric shapes, adding a text box, Word Art effects, Smart Art, Statistical Chart, page header and footer)	applied	evaluation
Fourteenth	2	The student works on preparing slides for text and graphic shapes and preparing an interactive presentation of the slides in Power Point 2010.	Power Point 2010 program - Run the program and get to know the program interface - Prepare a slide (main text, word art, graphic shapes, text box, background)	applied	evaluation
Fifteenth	2	The student works on preparing slides for text and graphic shapes and preparing an interactive presentation of the slides in Power Point 2010. The student works on preparing slides for text and graphic shapes and preparing an interactive presentation of the slides in Power Point 2010.	- Animating elements on the slide Custom Animation (add movement to any element on the slide, add sound to the movement, review the project within the storyboard, review the project on the entire screen, erase the movement, change the movement sequence, add implicit movement) - Prepare a multi-slide project (add a new slide, edit slides, delete slides) - Preparing an interactive presentation of slides using Hyper Link	applied	evaluation

## 11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

## 12. Learning and Teaching Resources

Required textbooks (curricular books, if any)

Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

## Course Description Form

<b>1. Course Name:</b>					
Quantity Surveying 1					
<b>2. Course Code:</b>					
<b>3. Semester / Year:</b>					
First semester of the academic year 2023 - 2024					
<b>4. Description Preparation Date:</b>					
5-2-2024					
<b>5. Available Attendance Forms:</b>					
Present					
<b>6. Number of Credit Hours (Total) / Number of Units (Total)</b>					
30 hours per week, 2 hours per session, 2 units					
<b>7. Course administrator's name (mention all, if more than one name)</b>					
Name: Maytham Jasim Jabbar					
Email: maytham.jasim@mtu.edu.iq					
<b>8. Course Objectives</b>					
<b>Course Objectives</b>		<ul style="list-style-type: none"> <li>The student should be able to identify the types of materials, machines, and equipment.</li> <li>Learning about the implementation methods of different engineering projects</li> <li>Calculation of Quantities of Different Engineering Materials</li> </ul>			
<b>9. Teaching and Learning Strategies</b>					
<b>Strategy</b>		<input type="checkbox"/> Lecture <input type="checkbox"/> Discussion <input type="checkbox"/> Brainstorming			
<b>10. Course Structure</b>					
Week	Hours	Desired Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Introducing the student to the types of construction materials used in engineering projects	Introducing the student to the types of construction materials used in engineering projects	Present	Monthly and Final
2	2	Identifying Raw materials: Cement	Raw materials: Cement (properties, types), sand	Present	

		(properties, types), sand and gravel, calculation of cement, sand and gravel quantities in concrete mixtures.	and gravel, calculation of cement, sand and gravel quantities in concrete mixtures.		
<b>3</b>	<b>2</b>	Identifying Brick (types, properties) and quantity calculation	Brick (types, properties) and quantity calculation	Present	
<b>4</b>	<b>2</b>	Identifying Types of mortar (calculation of the volume of mortar used in construction), blocks (its advantages and calculation of quantities).	Types of mortar (calculation of the volume of mortar used in construction), blocks (its advantages and calculation of quantities).	Present	
<b>5</b>	<b>2</b>	Identifying Tiles (Types, Calculating the Number of Tiles in Floors), Sticker Tiles.	Tiles (Types, Calculating the Number of Tiles in Floors), Sticker Tiles.	Present	
<b>6</b>	<b>2</b>	Identifying Moisture-proof materials (types, uses), iron, wood	Moisture-proof materials (types, uses), iron, wood	Present	
<b>7</b>	<b>2</b>	Identifying Gypsum (usage, calculation of the amount of gypsum required for plastering walls, calculation of the amount of cement and sand required for spraying walls	Gypsum (usage, calculation of the amount of gypsum required for plastering walls, calculation of the amount of cement and sand required for spraying walls	Present	
<b>8</b>	<b>2</b>	Identifying Estimation (definition, purpose, types), quantity tables, units of measurement used for all construction items.	Estimation (definition, purpose, types), quantity tables, units of measurement used for all construction items.	Present	
<b>9</b>	<b>2</b>	Identifying Calculation of the Quantity of Earthwork for Building Foundations and Explanation of the Quantity Table for It	Calculation of the Quantity of Earthwork for Building Foundations and Explanation of the Quantity Table for It	Present	
<b>10</b>	<b>2</b>	Identifying Calculation of the quantities of construction sections below the level of moisture barrier (square, concrete foundation, brickwork below the level of moisture barrier).	Calculation of the quantities of construction sections below the level of moisture barrier (square, concrete foundation, brickwork below the level of moisture barrier).	Present	
<b>11</b>	<b>2</b>	continuation of the previous week	continuation of the previous week	Present	
<b>12</b>	<b>2</b>	Identifying Calculation of the quantity of moisture barrier concrete, calculation of	Calculation of the quantity of moisture barrier concrete, calculation of the	Present	

		the quantity of paragraphs above the moisture barrier level and explanation of its quantity table	quantity of paragraphs above the moisture barrier level and explanation of its quantity table		
<b>13</b>	<b>2</b>	continuation of the previous week	continuation of the previous week	Present	
<b>14</b>	<b>2</b>	Identifying Calculation of the quantities of reinforced concrete for the slab and reinforced concrete for the tie	Calculation of the quantities of reinforced concrete for the slab and reinforced concrete for the tie	Present	
<b>15</b>	<b>2</b>	continuation of the previous week.	continuation of the previous week.	Present	

### 11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports ....etc

### 12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

## Course Description Form

1. Course Name:	
Human rights	
2. Course Code:	
3. Semester / Year:	
Semester 1/2023-2024	
4. Description Preparation Date:	
Academic year 2023-2024	
5. Available Attendance Forms:	
Attend mandatory weekly	
6. Number of Credit Hours (Total) / Number of Units (Total)	
2theory * 15 weeks	
7. Course administrator's name (mention all, if more than one name)	
Name:	
Email:	
8. Course Objectives	
<b>Course Objectives</b>	<ul style="list-style-type: none"> <li>• • Teaching the student the trends and values contained in the human rights and democracy education curriculum</li> <li>• • Teaching the student what human rights are</li> <li>• • Teaching students about freedoms and their types</li> </ul>
9. Teaching and Learning Strategies	
<b>Strategy</b>	<ul style="list-style-type: none"> <li>• lecture.</li> <li>• Discussion and dialogue.</li> <li>• Brainstorming</li> </ul>
10. Course Structure	

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2 theoretical hours	Knowing human rights, their definition and goals.	Human rights definition and goals	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
2	2	Knowledge of human	Human rights in heavenly laws.	Lecture theoretical	Discussion and solving exercises, Quiz,

	theoretical hours	rights in heavenly laws.			Homework
3	2 theoretical hours	Knowledge of human rights in contemporary and modern history.	Human rights in contemporary and modern history	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
4	2 theoretical hours	Knowledge of regional recognition of human rights.	Regional recognition of human rights.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
5	2 theoretical hours	Knowledge of NGOs.	Non-governmental organizations.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
6	2 theoretical hours	Knowledge of human rights in Iraqi constitutions	Human rights in Iraqi constitutions	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
7	2 theoretical hours	Knowing the relationships between human rights and public freedoms.	Relations between human rights and public freedoms.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
8	2 theoretical hours	Knowledge of economic, social and cultural human rights.	Economic, social and cultural human rights.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
9	2 theoretical hours	Knowledge of modern human rights, the right to development	Modern human rights: the right to development.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
10	2 theoretical hours	Knowledge of guarantees of respect and protection of human rights at the national level.	Guarantees of respect and protection of human rights at the national level.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
11	2 theoretical hours	Knowledge of guarantees of respect and protection of human rights at the	Guarantees of respect and protection of human rights at the international level.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework



		international level.			
12	2 theoretical hours	Knowledge of the general theory of freedoms and the origin of rights.	The general theory of freedoms is the origin of rights.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
13	2 theoretical hours	Knowledge of the legal rule of the state of law.	The legal rule of the state of law.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
14	2 theoretical hours	Knowledge of the regulation of public freedoms by public authorities.	Regulation of public freedoms by public authorities.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
15	2 theoretical hours	Knowledge of equality.	equality.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework

## 11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

## 12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	<p>1. Human rights (development - contents - protection) by Prof. Dr. Riad Aziz Hadi</p> <p>2. Human rights, democracy and public freedoms / Dr. Maher Sabry Kazem</p>
Recommended books and references (scientific journals, reports...)	-
Electronic References, Websites	

## Course Description Form

<b>1. Course Name:</b>	
workshops	
<b>2. Course Code:</b>	
<b>3. Semester / Year:</b>	
Semester 1/2023–2024	
<b>4. Description Preparation Date:</b>	
Academic year 2023-2024	
<b>5. Available Attendance Forms:</b>	
Attend mandatory weekly	
<b>6. Number of Credit Hours (Total) / Number of Units (Total)</b>	
(45) study hours (3) hours per week / number of units (3)	
<b>7. Course administrator's name (mention all, if more than one name)</b>	
Name:	
Email:	
<b>8. Course Objectives</b>	
<b>Course Objectives</b>	<ul style="list-style-type: none"> <li>Acquiring manual skills by using hand tools and measuring tools.</li> <li>The ability to work and operate machines in the optimal manner</li> <li>Acquiring skills in construction, sanitary and electrical works</li> </ul>
<b>9. Teaching and Learning Strategies</b>	
<b>Strategy</b>	<ul style="list-style-type: none"> <li>lecture.</li> <li>Discussion and dialogue.</li> <li>Brainstorming.</li> </ul>
<b>10. Course Structure</b>	

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2 theoretical hours	The student understands the lesson	Introducing the student to the methods of dyeing wood.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
2	2 theoretical	The student understands the lesson	Planning, excavation and burial works.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework

	hours				
3	3 hours	The student understands the lesson	Construction works using bricks, blocks and thermostone.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
4	3 hours	The student understands the lesson	Types of bonding in bricks.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
5	3 hours	The student understands the lesson	Making molds for bridges, roofs and columns..	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
6	3 hours	The student understands the lesson	Armament works.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
7	3 hours	The student understands the lesson	How to make concrete	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
8	3 hours	The student understands the lesson	Finishing works include ficus, eggs, scattering, and marbled.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
9	3 hours	The student understands the lesson	Application in cash.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
10	3 hours	The student understands the lesson	Painting works.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
11	3 hours	The student understands the lesson	Health business .	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
12	3 hours	The student understands the lesson	Electrical installations.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
13	3 hours	The student understands the lesson	Introducing the student to the methods of dyeing wood.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
14	3 hours	The student understands the lesson	Planning, excavation and burial works.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
15	3 hours	The student understands the lesson	Construction works using bricks, blocks and thermostone.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework

## 11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

## 12. Learning and Teaching Resources

Required textbooks (curricular books, if any)

George B. Thomas, Jr., "Thomas 'Calculus", 12th edition, Addison Wesley,.

Main references (sources)	
Recommended books and references (scientific journals, reports...)	-
Electronic References, Websites	

## Course Description Form

1. Course Name:	
Arabic literature	
2. Course Code:	
3. Semester / Year:	
Semester 1/2023–2024	
4. Description Preparation Date:	
Academic year 2023-2024	
5. Available Attendance Forms:	
Attend mandatory weekly	
6. Number of Credit Hours (Total) / Number of Units (Total)	
2theory * 15 weeks	
7. Course administrator's name (mention all, if more than one name)	
Name: Dr. Asaad Abbas Kazem Email:	
8. Course Objectives	
<b>Course Objectives</b>	<ul style="list-style-type: none"> <li>• Knowing the basics of Arabic grammar.</li> </ul>
9. Teaching and Learning Strategies	
<b>Strategy</b>	<ul style="list-style-type: none"> <li>• lecture.</li> <li>• Discussion and dialogue.</li> <li>• Brainstorming</li> </ul>
10. Course Structure	

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2 theoretical hours	The student understands the lesson	Introduction to linguistic errors.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
2	2 theoretical hours	The student understands the lesson	Rules for writing extended and short alifs.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
3	2	The student understands	Dhaad and Dhaa.	Lecture theoretical	Discussion and solving exercises, Quiz,

	theoretical hours	the lesson			Homework
4	2 theoretical hours	The student understands the lesson	Writing the hamza.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
5	2 theoretical hours	The student understands the lesson	punctuation marks.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
6	2 theoretical hours	The student understands the lesson	Noun and verb.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
7	2 theoretical hours	The student understands the lesson	Effects.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
8	2 theoretical hours	The student understands the lesson	the number.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
9	2 theoretical hours	The student understands the lesson	. Linguistic errors applications.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
10	2 theoretical hours	The student understands the lesson	Nun and Tanween.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
11	2 theoretical hours	The student understands the lesson	Meanings of the preposition.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
12	2 theoretical hours	The student understands the lesson	The language of administrative discourse.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
13	2 theoretical hours	The student understands the lesson	Examples of administrative correspondence.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
14	2 theoretical hours	The student understands the lesson	Introduction to linguistic errors.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
15	2 theoretical hours	The student understands the lesson	Rules for writing extended and short alifs.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework

## 11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

## 12. Learning and Teaching Resources

Required textbooks (curricular books, if any)

Main references (sources)

1. Clear dictation / AbdulMajeed Al-Naim / Dahham Al-Kayyal, Dar Al-Mutanabbi Library, Baghdad, 1987, 6th edition.
2. Lessons in language and grammar / Ismail Hammoud Atwan and others.
3. Arabic language for the third intermediate grade / Fatima Nazim Al-Atabi.
4. General Arabic for non-specialized departments
5. Inspired by Arabic literature / Haval Muhammad Amin

Recommended books and references (scientific journals, reports...)

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Electronic References, Websites

## Course Description Form

<b>1. Course Name:</b>	
Surveying	
<b>2. Course Code:</b>	
Plane surveying /2	
<b>3. Semester / Year:</b>	
2023 / 2024	
<b>4. Description Preparation Date:</b>	
7/2/2024	
<b>5. Available Attendance Forms:</b>	
Presence	
<b>6. Number of Credit Hours (Total) / Number of Units (Total)</b>	
(240) study hours (8) hours per week / number of units (8)	
<b>7. Course administrator's name (mention all, if more than one name)</b>	
Name: salih suliman kshash Email: <a href="mailto:salih.suliman@mtu.edu.iq">salih.suliman@mtu.edu.iq</a>	
<b>8. Course Objectives</b>	
<b>Course Objectives</b>	<ul style="list-style-type: none"> <li>• • The student understands the types of settlement</li> <li>• Knowing how to install leveling devices and how to read a ruler</li> <li>• Knowing the ways and means of finding levels</li> <li>• Know how to draw longitudinal sections</li> <li>• How to prepare contour maps</li> </ul>
<b>9. Teaching and Learning Strategies</b>	
<b>Strategy</b>	<ul style="list-style-type: none"> <li>• lecture</li> <li>• Discussion and dialogue</li> <li>• Brainstorming</li> <li>• Use presentation and presentation method</li> <li>• Drawing illustrative diagrams</li> </ul>



10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1		The practical part is devices leveling, its types and parts	leveling	<b>Presence</b>	Daily Exams
2,3		The practical part applied and practical exercises calculate point levels	The purpose of the leveling Methods of calculating levels	<b>Presence</b>	
4,5		Complementary calculation methods (Height method and decline)	Methods of calculating levels	<b>Presence</b>	And monthly
6,7		The practical part is exercises Applied and practical calculation Point levels	vertical closing error Permissible error Correction of levels	<b>Presence</b>	And its finality
8,9		The practical part is exercises Applied and practical drawing Longitudinal sections	Longitudinal section And the occasional one	<b>Presence</b>	
10,11		The practical part is exercises Applied	(contour period)	<b>Presence</b>	And practical reports
12		The practical part is exercises Applied and practical drawing Contour maps	Preparing the contour map	<b>Presence</b>	And daily post
13		exercises	Northern types And get to know Magnetic compass	<b>Presence</b>	
14,15		Practical exercises on Water area	Water area Identifying the device and tools used in water surveying	<b>Presence</b>	
11. Course Evaluation					
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc					

## 12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	<p>1- Rymond E .davis Joe Wkelly. Elementary plan surveying 2- Singh , Narindr Surveying _Tata MC Graw – Hill publishing Company limited – New Delhi 1982 3- زياد عبد الجبار البكر ، إبراهيم داود علوان المساحة العملي. 4- رزان ابراهيم 2011 ، اصول المساحة عمان – مكتبة المجمع. 5- يوسف صيام 2001 ، المساحة – كلية الهندسة الجامعة الاردنية. 6- ياسين عبيد احمد 1990 المساحة الهندسية – كلية الهندسة جامعة البهو.</p>
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	



Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The first	5	The student understands the lesson	Foundations of aerial stereoscopic surveying using stuffing devices.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
The second	5	The student understands the lesson	Internal guidance - steps to implement it:	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
Third -	5	The student understands the lesson	1- Preparing the positive glass image	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
Fourth:	5	The student understands the lesson	2- Compensation for distortion caused by the camera lens.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
Fifth	5	The student understands the lesson	3- Centering the positive glass image in the projector.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
sixth	5	The student understands the lesson	4- Set the correct basic distance on the projector.	Lecture theoretical	Discussion and solving exercises Quiz, Homework
Seventh	5	The student understands the lesson	- Relative orientation, possible movements of the projector (translational and rotational movements)	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
Eighth	5	The student understands the lesson	Distribution of the points used to guide the stereoscopic model, and studying the effect of translational and rotational movements on the movement of the images projected into the filler device.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
Ninth	5	The student understands the lesson	Methods of performing relative guidance using the various elements of the filling device, focusing on performing relative guidance using only the rotary elements.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
Tenth	5	The student understands the	Absolute guidance:	Lecture theoretical	Discussion and solving exercises,

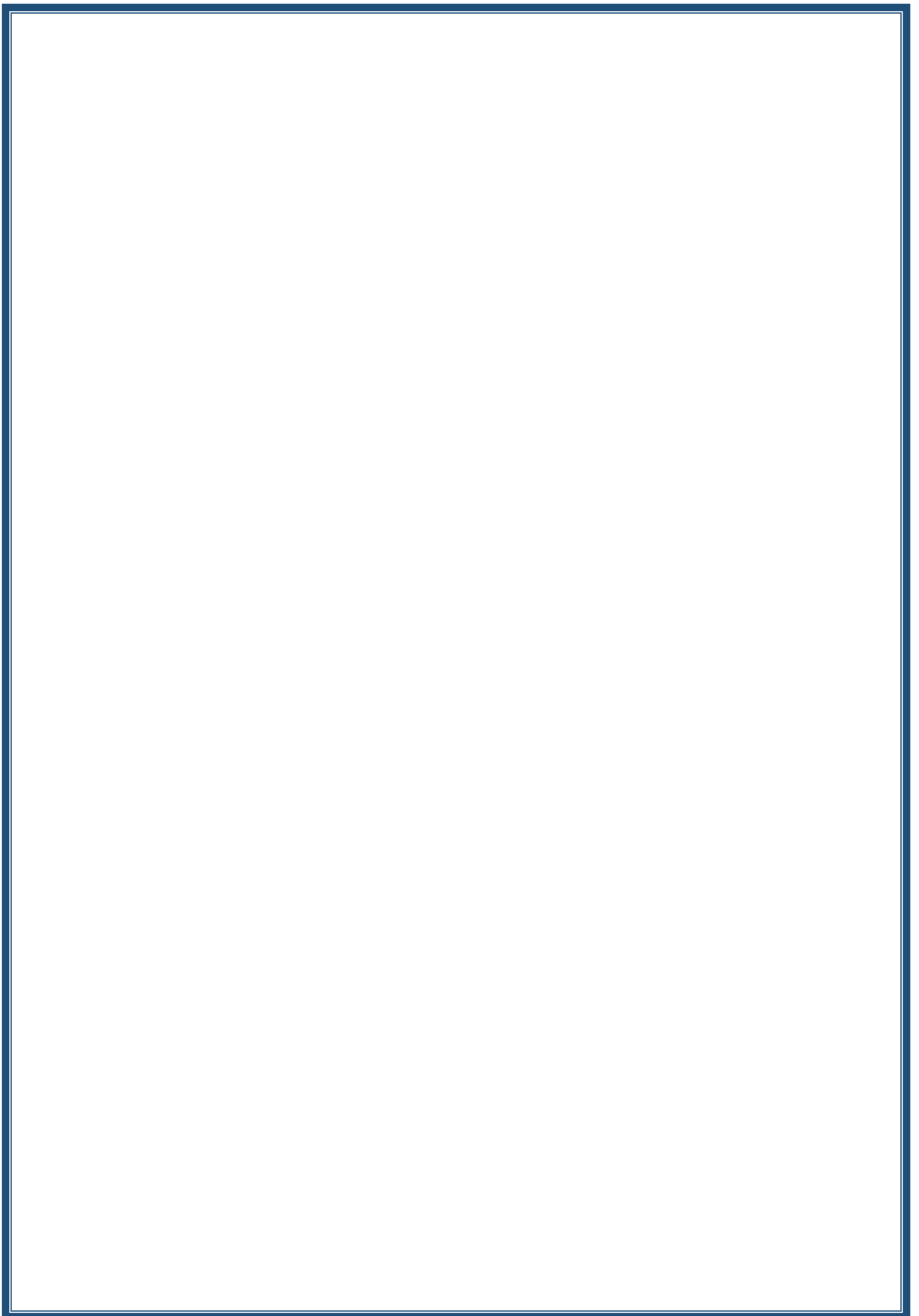
		lesson			Quiz, Homework
Eleventh	5	The student understands the lesson	- Choose the model drawing scale	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
Twelfth	5	The student understands the lesson	- Adjust the scale of the model	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
Thirteenth	5	The student understands the lesson	- Settle the model	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
Fourteenth	5	The student understands the lesson	Using the “Erdas-Imagine” program to suit the student’s needs for dealing with digital data, by clarifying the following headings:	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
Fifteenth	5	The student understands the lesson	<b>Blend fed Swipe Raster attribute editor</b>	Lecture theoretical	Discussion and solving exercises, Quiz, Homework

## 11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

## 12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	1- Aerial photogrammetry - Labib Nassif, Technical Education Authority, second edition, 1999. 2- Manual of photogrammetry-American society of photogrammetry By Moffitt. 3 Elements of photogrammetry – Paul R.wolf 2nd Edition. 4. Erdas ImagineTour Guides, Leica Geosystems Geospatial Imaging, 2006.
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	



## Course Description Form

<b>1. Course Name:</b>	
Mathematics 1	
<b>2. Course Code:</b>	
<b>3. Semester / Year:</b>	
Semester 1/2023–2024	
<b>4. Description Preparation Date:</b>	
Academic year 2023-2024	
<b>5. Available Attendance Forms:</b>	
Attend mandatory weekly	
<b>6. Number of Credit Hours (Total) / Number of Units (Total)</b>	
2theory * 15 weeks	
<b>7. Course administrator's name (mention all, if more than one name)</b>	
Name: Fatima Asaad Tayeb Email: fm.alkobaisi@gmail.com	
<b>8. Course Objectives</b>	
<b>Course Objectives</b>	<ul style="list-style-type: none"> <li>• understand the key concepts and knowledge of the rules and the laws of mathematics and its application in space technology.</li> <li>• illustrate mathematical ideas through the representation of geometric shapes in both the level and the leisure and study some of the algebraic structure.</li> <li>• the subject of mathematics that are designed to clarify the practical and philosophical challenges of the current engineering and mathematics that spurred this constant evolution, as well as providing basic concepts of differentiation and integration useful for further study of the science of engineering and applied mathematics in the scientific and practical field</li> <li>• students acquire the skills to resolve issues.</li> </ul>
<b>9. Teaching and Learning Strategies</b>	
<b>Strategy</b>	<ul style="list-style-type: none"> <li>• Assess students individually by giving the opportunity to participate through a classroom answering questions.</li> <li>• Student Assessment collectively through daily exams quizzed process and theory.</li> <li>• Student Assessment collectively by giving extra- curricular duties such as writing reports or those that concerning .</li> <li>• The end of the first semester exams (half a year) and the second chapter and final exams for the first round and the second</li> </ul>

## 10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2 theoretical hours	The student understands the lesson	Definite Integration, Applications of Definite Integration	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
2	2 theoretical hours	The student understands the lesson	Area under a curve, the area between two curves.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
3	2 theoretical hours	The student understands the lesson	Numerical methods in integration, finding the area using the trapezoid rule.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
4	2 theoretical hours	The student understands the lesson	Find the area using Simpson's rule	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
5	2 theoretical hours	The student understands the lesson	Statistical operations/range, arithmetic mean, standard deviation	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
6	2 theoretical hours	The student understands the lesson	Graphs/curve, graph bars, histogram, histogram (sector angle)	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
7	2 theoretical hours	The student understands the lesson	The spherical triangle, its definition, properties, Napier's rules	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
8	2 theoretical hours	The student understands the lesson	Solve the right spherical triangle.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
9	2 theoretical hours	The student understands the lesson	Solve the equilateral and isosceles spherical triangle.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
10	2 theoretical hours	The student understands the lesson	Oblique spherical triangle, law of sine and cosine.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
11	2 theoretical hours	The student understands the lesson	The spherical surface of a spherical triangle, the area of a spherical triangle.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
12	2 theoretical hours	The student understands the lesson	Various exercises in solving the spherical triangle	Lecture theoretical	Discussion and solving exercises, Quiz, Homework



13	2 theoretical hours	The student understands the lesson	Matlab program, its definition, some of its applications.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
14	2 theoretical hours	The student understands the lesson	Solving matrices and determinants, derivatives, and integration using Matlab	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
15	2 theoretical hours	The student understands the lesson	Graphs using Matlab	Lecture theoretical	Discussion and solving exercises, Quiz, Homework

## 11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

## 12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	George B. Thomas, Jr., "Thomas 'Calculus", 12th edition, Addison Wesley, Pearson Education, Inc, 2010.
Main references (sources)	Institute library for additional resources for the curriculum
Recommended books and references (scientific journals, reports...)	- All sound scientific journals that must do in the broad sense of mathematics and spherical triangles
Electronic References, Websites	Sites on the Internet pertaining to mathematics and spherical triangles

## Course Description Form

<b>1. Course Name:</b>	
<b>Techniques of Remote Sensing</b>	
<b>2. Course Code:</b>	
<b>3. Semester / Year:</b>	
<b>2nd Semester 2023–2024</b>	
<b>4. Description Preparation Date:</b>	
<b>5/2/2024</b>	
<b>5. Available Attendance Forms:</b>	
<b>Blended</b>	
<b>6. Number of Credit Hours (Total) / Number of Units (Total)</b>	
<b>30 Hours (2 hours per week)</b>	
<b>7. Course administrator's name (mention all, if more than one name)</b>	
<b>Name: Asst.Lec. Ali Hussein Alwan</b>	
<b>Email: ali_hussein@mtu.edu.iq</b>	
<b>8. Course Objectives</b>	
<b>Course Objectives</b>	<ul style="list-style-type: none"> <li>• <b>Knowledge of the foundations and principles of remote sensing.</b></li> <li>• <b>Knowledge of remote sensing techniques.</b></li> <li>• <b>Knowledge of the components of digital images and the meaning of image resolution.</b></li> <li>• <b>Knowledge of sources in remote sensing.</b></li> <li>• <b>Knowledge of satellites used in remote sensing.</b></li> <li>• <b>Knowledge of diverse applications in remote sensing.</b></li> </ul>
<b>9. Teaching and Learning Strategies</b>	
<b>Strategy</b>	<ul style="list-style-type: none"> <li>• <b>Use the presentation method.</b></li> <li>• <b>Draw illustrative diagrams.</b></li> <li>• <b>The method of brainstorming.</b></li> </ul>

## 10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-2	2	Digital Image Processing.	Digital Image Processing.	Theory	Monthly and final exams.
3	2	Types of Digital Images.	Types of Digital Images.	Theory	
4	2	Electromagnetic Energy.	Electromagnetic Energy.	Theory	
5	2	Statistical procedures of images.	Statistical procedures of images.	Theory	
6	2	Geometric Correction.	Geometric Correction.	Theory	
7	2	Radiometric Correction.	Radiometric Correction.	Theory	
8	2	Noise Removal.	Noise Removal.	Theory	
9-10	2	Image Enhancement.	Image Enhancement.	Theory	
11-13	2	Visual Image Interpretation.	Visual Image Interpretation.	Theory	
14	2	Image Classification.	Image Classification.	Theory	
15	2	The Work of the Radar.	The Work of the Radar.	Theory	

## 11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc.

## 12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	<p>1. مراد الشيوخ، التحسس البعيد، هيئة المعاهد الفنية، وزارة التعليم العالي والبحث العلمي، العراق. 2. د. جمعة محمد داود، (2015)، أسس وتطبيقات جمهورية مصر العربية. 3. د. محمد احمد مياس، (٣١٠٢)، أسس الاستشعار عن بعد، دار جامعة صنعاء للطباعة والبيزن، اليمن. 4. د. معالجة الصور الرقمية ني الاستشعار عن بعد، كلية الهندسة، جامعة الملك سعود المملكة العربية السعودية. 5. "Principles of remote sensing", University of Technology Building &amp; Construction Department Remote Sensing &amp; GIS lecture, Iraq. 6. Dr. Hussein Hameed Karim "Digital Image Processing", University of Technology Building &amp; Construction, Iraq.</p>
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

## Course Description Form

<b>1. Course Name:</b>	
Computer engineering drawing Auto CAD 2010	
<b>2. Course Code:</b>	
<b>3. Semester / Year:</b>	
Second course 2024	
<b>4. Description Preparation Date:</b>	
<b>2024/2/4</b>	
<b>5. Available Attendance Forms:</b>	
My presence	
<b>6. Number of Credit Hours (Total) / Number of Units (Total)</b>	
3 practical hours / number of units 3	
<b>7. Course administrator's name (mention all, if more than one name)</b>	
Name: Morteda .A. Hashem Email: Morteda.abbas@mtu.edu.iq	
<b>8. Course Objectives</b>	
<b>Course Objectives</b>	<b>1- Teaching the student to use the drawing program Auto CAD 2010</b> <b>2- Get to know the program interface, drawing and editing commands, writing commands, adding dimensions, segmentation, and composing layers.</b>
<b>9. Teaching and Learning Strategies</b>	
<b>Strategy</b>	<ul style="list-style-type: none"> <li>The teacher introduces students to the most important main applications of ready-made software applications.</li> <li>Giving students extracurricular assignments that require them to exert skills and self-explanations in experimental ways.</li> <li>Interrogating students through discussion sessions by asking thinking questions (how, why, when, where, which) for specific topics.</li> <li>Using the method of brainstorming and feedback in order to activate the accumulated experiences of students by linking the subjects taken in the previous academic stages and linking them to the new ones.</li> </ul>

## 10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The first	3	The student works on Auto CAD 2010	Auto CAD 2010 program	applied	evaluation
The second	3	Running the program and general concepts (running the program, getting to know the program's workspace, display cube, steering wheel, display movement, ribbon, menus, toolbars, closing the program)	Running the program and general concepts (running the program, getting to know the program's workspace, display cube, steering wheel, display movement, ribbon, menus, toolbars, closing the program)	applied	evaluation
Third -	3	The student opens a previous drawing file, controls the display of the contents of the drawing file using the Zoom command and its options, the Pan command, closes the drawing file, creates a new file, and saves the file.	Precise drawing and drawing aids (Grid, Snap, Ortho, Polar, Osnap)	applied	evaluation
Fourth:	3	- Units command and Limits command	- Open a previous drawing file, control the display of the contents of the drawing file using the Zoom command and its options, the Pan command, close the drawing file, create a new file, save the file	applied	evaluation
Fifth	3	The student draws an accurate drawing and drawing aids (Grid, Snap, Ortho, Polar, Osnap)	- Units command and Limits command	applied	evaluation
sixth	3	The student works on the drawing commands Draw (Point, Line), formulas for defining point coordinates, Multiline	Precise drawing and drawing aids (Grid, Snap, Ortho, Polar, Osnap)	applied	evaluation
Seventh	3	Drawing commands (Polyline, Rectangle, Polygon)	Draw commands (Point, Line, formulas for defining point coordinates, Multiline)	applied	evaluation
Eighth	3	The student works on the drawing commands Draw	Drawing commands (Polyline, Rectangle, Polygon)	applied	evaluation

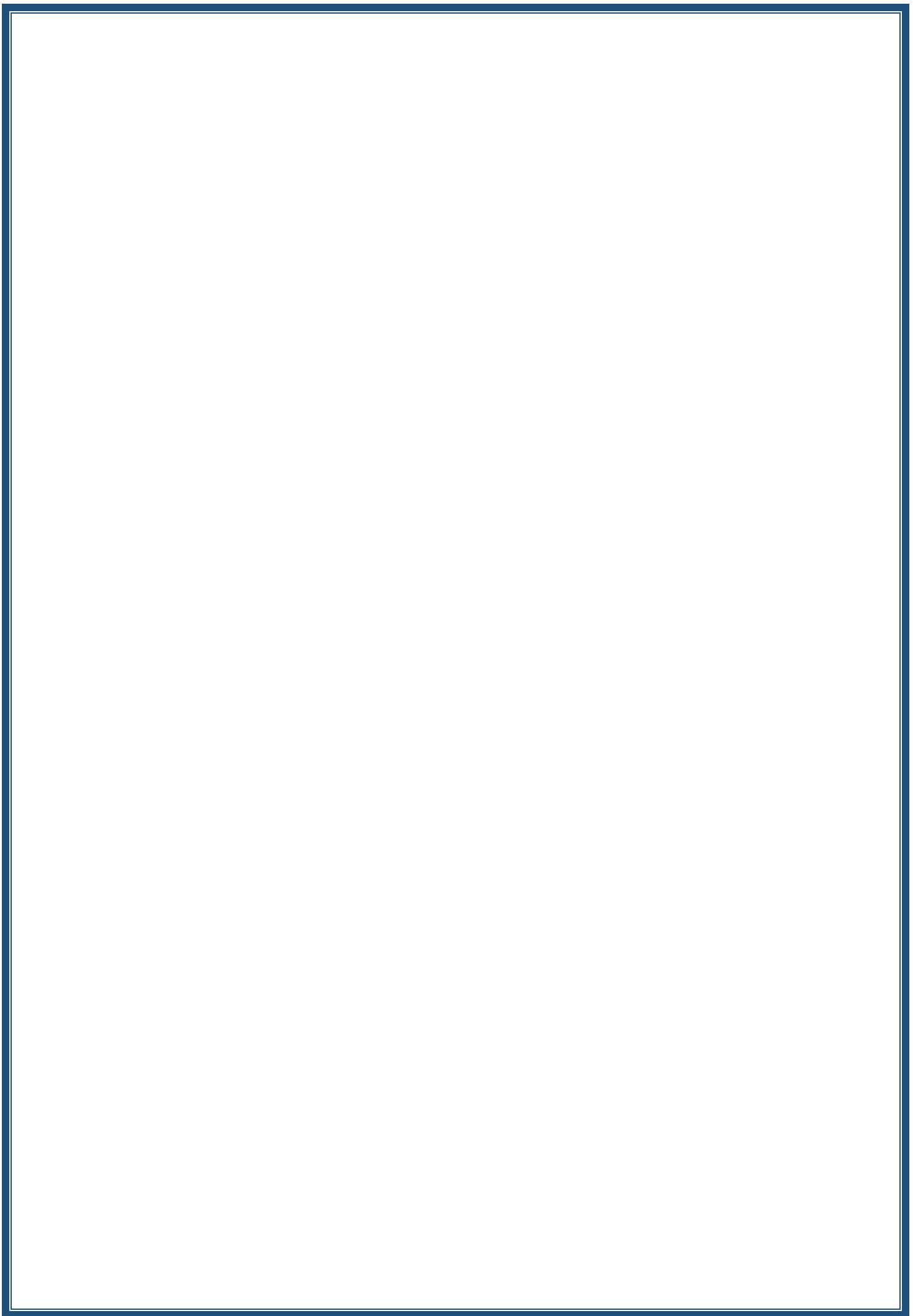
		(Circle, Arc, Ellipse).			
Ninth	3	The student works on identifying drawing elements, grips	Drawing commands (Circle, Arc, Ellipse)	applied	evaluation
Tenth	3	The student works on the modification commands (Erase, Move, Rotation, Copy, Offset).	Identify drawing elements, Grips	applied	evaluation
Eleventh	3	The student works on the Modify commands (Mirror, Array, Scale, Break, Extend	Modify commands (Erase, Move, Rotation, Copy, Offset)	applied	evaluation
Twelfth	3	The student works on the modification commands Modify (Fillet, Chamfer, Trim, Explode	Modify commands (Mirror, Array, Scale, Break, Extend)	applied	evaluation
Thirteenth	3	The student works on writing commands (Single line text, Multiline text), creating new writing style models	Modify commands (Fillet, Chamfer, Trim, Explode)	applied	evaluation
Fourteenth	3	The student works on sectors and segmentation	Text writing commands (Single line text, Multiline text, creating new style models for writing	applied	evaluation
Fifteenth	3	The student works on controlling drawing specifications (Line type, Line weight, Color)	Layers (create a new layer, change the layer name, delete the layer, show and hide layers, dissolve layers, lock and unlock layers, change color, font type, line width, layer printing, layer filter	applied	evaluation

## 11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

## 12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	





## Course Description Form

<b>1. Course Name:</b>					
Quantity Surveying 2					
<b>2. Course Code:</b>					
<b>3. Semester / Year:</b>					
Second semester of the academic year 2023 - 2024					
<b>4. Description Preparation Date:</b>					
5-2-2024					
<b>5. Available Attendance Forms:</b>					
Present					
<b>6. Number of Credit Hours (Total) / Number of Units (Total)</b>					
30 hours per week, 2 hours per session, 2 units					
<b>7. Course administrator's name (mention all, if more than one name)</b>					
Name: Maytham Jasim Jabbar					
Email: maytham.jasim@mtu.edu.iq					
<b>8. Course Objectives</b>					
<b>Course Objectives</b>		<ul style="list-style-type: none"> <li>The student should be able to identify the types of materials, machines, and equipment.</li> <li>Learning about the implementation methods of different engineering projects</li> <li>Calculation of Quantities of Different Engineering Materials</li> </ul>			
<b>9. Teaching and Learning Strategies</b>					
<b>Strategy</b>		<input type="checkbox"/> Lecture <input type="checkbox"/> Discussion <input type="checkbox"/> Brainstorming			
<b>10. Course Structure</b>					
Week	Hours	Desired Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Identifying Construction machinery, their use, efficiency, (excavators, bulldozers, cranes, transport machines, compaction and rollers machines, tampers).	Construction machinery, their use, efficiency, (excavators, bulldozers, cranes, transport machines, compaction and rollers machines, tampers).	Present	Exams Final and Monthly

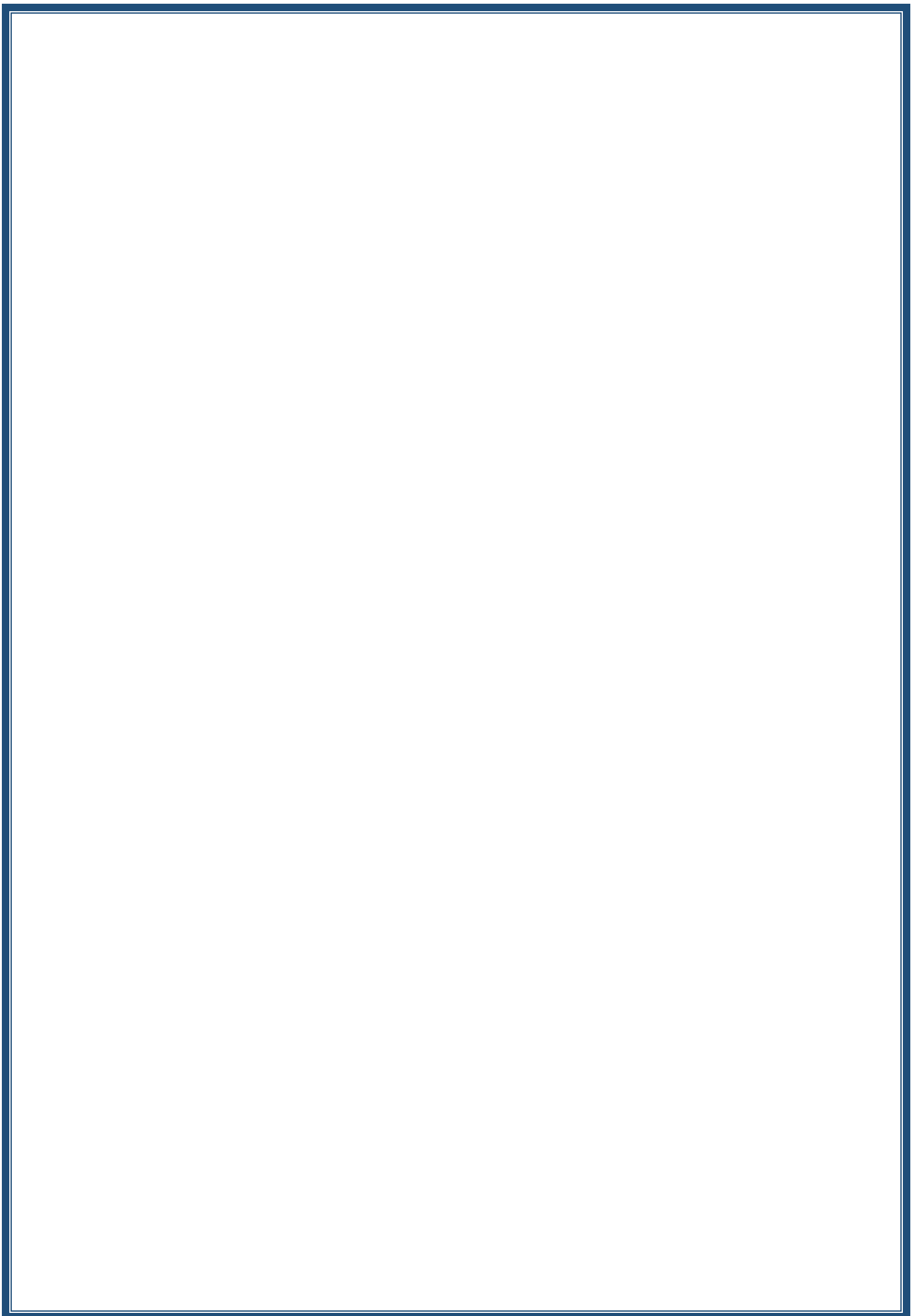
2	2	Identifying Calculation of the quantity of finishing works (plastering, whitewashing, plastering, painting) and explanation of the quantity table for it.	Calculation of the quantity of finishing works (plastering, whitewashing, plastering, painting) and explanation of the quantity table for it.	Present
3	2	Identifying Calculation of the quantity of floor work, tiles, curbs and quantity table.	Calculation of the quantity of floor work, tiles, curbs and quantity table.	Present
4	2	Identifying Apply the above paragraphs using the computer.	Apply the above paragraphs using the computer.	Present
5	2	Identifying Types of Building Foundations, Their Forms and Uses.	Types of Building Foundations, Their Forms and Uses.	Present
6	2	Types of Roads.	Types of Roads.	Present
7	2	Identifying Estimation and Measurement for Roadworks, Methods for Calculating the Volumes of Earthworks	Estimation and Measurement for Roadworks, Methods for Calculating the Volumes of Earthworks	Present
8	2	Identifying various exercises for calculating the volumes of earthworks.	various exercises for calculating the volumes of earthworks.	Present
9	2	continuation of the previous week.	continuation of the previous week.	Present
10	2	Identifying Types of Joints in Roads	Types of Joints in Roads	Present
11	2	Identifying Estimation and measurement for canal works (for irrigation and drainage).	Estimation and measurement for canal works (for irrigation and drainage).	Present
12	2	Identifying Railways, tunnels, and estimation of the cost of completing tunnels.	Railways, tunnels, and estimation of the cost of completing tunnels.	Present
13	2	Identifying Types of Airports.	Types of Airports.	Present
14	2	Identifying Traffic signs.	Traffic signs.	Present
15	2	film screening	film screening	Present

## 11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

## 12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	



## Course Description Form

1. Course Name:	
English Language	
2. Course Code:	
3. Semester / Year:	
2nd Semester 2023–2024	
4. Description Preparation Date:	
5/2/2024	
5. Available Attendance Forms:	
Blended	
6. Number of Credit Hours (Total) / Number of Units (Total)	
30 Hours (2 hours per week)	
7. Course administrator's name (mention all, if more than one name)	
Name: Thear Qasim Mazhe	
Email:	
8. Course Objectives	
Course Objectives	Improving students' skills in English language, developing their reading, writing and listening abilities, and enable them to write scientific reports in English language.
9. Teaching and Learning Strategies	
Strategy	<ul style="list-style-type: none"><li>• Use the presentation method.</li><li>• Draw illustrative diagrams.</li><li>• The method of brainstorming.</li></ul>

## 10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Introductions, am/ are/ is. What's this in English?	Introductions, am/ are/ is. What's this in English?	Theory	Monthly and final exams.
2	2	Numbers 1 – 10. Plurals. Good morning!	Numbers 1 – 10. Plurals. Good morning!	Theory	
3	2	Countries, am/are/is. Her name's. She's from. Questions.	Countries, am/are/is. Her name's. She's from. Questions.	Theory	
4	2	Jobs, is/ isn't. Questions & negatives. Vocabulary revision.	Jobs, is/ isn't. Questions & negatives. Vocabulary revision.	Theory	
5	2	Passive's, my/our/her. The family, has/have. Vocabulary revision	Passive's, my/our/her. The family, has/have. Vocabulary revision	Theory	
6	2	Sports/food/drink. Present simple-1/you/they. Language and nationalities.	Sports/food/drink. Present simple-1/you/they. Language and nationalities.	Theory	
7	2	The time. Present Simple-he/she. Prepositions in/at/on. Words that go together.	The time. Present Simple-he/she. Prepositions in/at/on. Words that go together.	Theory	
8	2	Questions. Pronouns me/him. Possessive adjectives my/his/this/that.	Questions. Pronouns me/him. Possessive adjectives my/his/this/that.	Theory	
9	2	Rooms & furniture. There is/there are. Prepositions on/under/next to. Vocabulary revision.	Rooms & furniture. There is/there are. Prepositions on/under/next to. Vocabulary revision.	Theory	
10	2	Saying years, was/were. Past Simple-irregular verbs have/do/go. Months & dates	Saying years, was/were. Past Simple-irregular verbs have/do/go. Months & dates	Theory	
11	2	Past Simple-regular verbs. Questions & negatives. Making conversation. Sport & leisure activities. Going sightseeing	Past Simple-regular verbs. Questions & negatives. Making conversation. Sport & leisure activities. Going sightseeing	Theory	
12	2	Can/can't. Adverbs-very well/not at all. Requests & offers. Adjective + noun. Everyday problems	Can/can't. Adverbs-very well/not at all. Requests & offers.	Theory	
13	2	Some/any. I'd like a../I'd like to. Offering things. Like & would like. Food	Some/any. I'd like a../I'd like to. Offering things. Like & would like. Food	Theory	
14	2	Colours & clothes. Present Continuous. Present Simple or Continuous?. Opposite verbs-leave-arrive. What's the matter?	Colours & clothes. Present Continuous. Present Simple or Continuous?. Opposite verbs-leave-arrive. What's the matter?	Theory	
15	2	Future plans. Grammar revision. Vocabulary revision.	Future plans. Grammar revision. Vocabulary revision.	Theory	

## 11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports ....etc.

## 12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	New headway Plus, Pre-Intermediate Student's book by John & Liz Soars Press. Oxford New headway Plus, Pre-Intermediate Workbook by John & Liz Soars Press. Oxford
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

## Course Description Form

<b>1. Course Name:</b>	
workshops	
<b>2. Course Code:</b>	
<b>3. Semester / Year:</b>	
Semester 1/2023–2024	
<b>4. Description Preparation Date:</b>	
Academic year 2023-2024	
<b>5. Available Attendance Forms:</b>	
Attend mandatory weekly	
<b>6. Number of Credit Hours (Total) / Number of Units (Total)</b>	
(45) study hours (3) hours per week / number of units (3)	
<b>7. Course administrator's name (mention all, if more than one name)</b>	
Name:	
Email:	
<b>8. Course Objectives</b>	
<b>Course Objectives</b>	<ul style="list-style-type: none"> <li>Acquiring manual skills by using hand tools and measuring tools.</li> <li>The ability to work and operate machines in the optimal manner</li> <li>Acquiring skills in construction, sanitary and electrical works</li> </ul>
<b>9. Teaching and Learning Strategies</b>	
<b>Strategy</b>	<ul style="list-style-type: none"> <li>lecture.</li> <li>Discussion and dialogue.</li> <li>Brainstorming.</li> </ul>
<b>10. Course Structure</b>	

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2 theoretical hours	The student understands the lesson	Introducing the student to the methods of dyeing wood.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
2	2 theoretical	The student understands the lesson	Planning, excavation and burial works.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework

	hours				
3	3 hours	The student understands the lesson	Construction works using bricks, blocks and thermostone.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
4	3 hours	The student understands the lesson	Types of bonding in bricks.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
5	3 hours	The student understands the lesson	Making molds for bridges, roofs and columns..	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
6	3 hours	The student understands the lesson	Armament works.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
7	3 hours	The student understands the lesson	How to make concrete	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
8	3 hours	The student understands the lesson	Finishing works include ficus, eggs, scattering, and marbled.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
9	3 hours	The student understands the lesson	Application in cash.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
10	3 hours	The student understands the lesson	Painting works.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
11	3 hours	The student understands the lesson	Health business .	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
12	3 hours	The student understands the lesson	Electrical installations.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
13	3 hours	The student understands the lesson	Introducing the student to the methods of dyeing wood.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
14	3 hours	The student understands the lesson	Planning, excavation and burial works.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
15	3 hours	The student understands the lesson	Construction works using bricks, blocks and thermostone.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework

## 11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

## 12. Learning and Teaching Resources

Required textbooks (curricular books, if any)

George B. Thomas, Jr., "Thomas 'Calculus", 12th edition, Addison Wesley,.



Main references (sources)	
Recommended books and references (scientific journals, reports...)	-
Electronic References, Websites	

## Course Description Form

1. Course Name:	
Democracy	
2. Course Code:	
3. Semester / Year:	
Semester 1/2023–2024	
4. Description Preparation Date:	
Academic year 2023-2024	
5. Available Attendance Forms:	
Attend mandatory weekly	
6. Number of Credit Hours (Total) / Number of Units (Total)	
2theory * 15 weeks	
7. Course administrator's name (mention all, if more than one name)	
Name: Sajjad Saadoun Email:	
8. Course Objectives	
<b>Course Objectives</b>	<ul style="list-style-type: none"> <li>• • Teaching the student the trends and values contained in the human rights and democracy education curriculum</li> <li>• • Teaching the student what human rights are</li> <li>• • Teaching students about freedoms and their types.</li> </ul>
9. Teaching and Learning Strategies	
<b>Strategy</b>	<ul style="list-style-type: none"> <li>• • lecture.</li> <li>• Discussion and dialogue.</li> <li>• Brainstorming</li> </ul>
10. Course Structure	

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2 theoretical hours	Knowing democracy, its definition and types.	Democracy, its definition and types.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
2	2	Knowledge	Knowledge of democratic	Lecture	Discussion and solving

	theoretical hours	of democratic concepts.	concepts.	theoretical	exercises, Quiz, Homework
3	2 theoretical hours	Knowledge of democracy in the third world.	Human rights in contemporary and modern history	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
4	2 theoretical hours	Knowledge of democratic systems in the world.	Democratic systems in the world.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
5	2 theoretical hours	Knowing the concept of freedoms and classification of public freedoms.	The concept of freedoms and classification of public freedoms.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
6	2 theoretical hours	Knowledge of basic freedoms, intellectual freedoms, economic and social freedoms.	Fundamental freedoms, intellectual freedoms, economic and social freedoms.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
7	2 theoretical hours	Knowing the freedoms of security and feeling reassured, freedom of coming and going.	Freedoms of security and a sense of reassurance, freedom of coming and going.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
8	2 theoretical hours	Knowledge of freedom of education, freedom of the press, freedom of assembly or consensus, freedom of associations, freedom of work.	Knowledge of freedom of education, freedom of the press, freedom of assembly or consensus, freedom of associations, freedom of work.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
9	2 theoretical hours	Knowledge of freedom of ownership / freedom of trade and industry, freedom of women.	Freedom of ownership / freedom of trade and industry, freedom of women.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
10	2 theoretical hours	Knowledge of political parties and public freedoms.	Political parties and public freedoms.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework

11	2 theoretical hours	Scientific and technical progress and public freedoms.	Scientific and technical progress and public freedoms.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
12	2 theoretical hours	Knowing the future of public freedoms.	The future of public freedoms.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
13	2 theoretical hours	Knowledge of water and environmental awareness in Iraq.	Water and environmental awareness in Iraq.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
14	2 theoretical hours	Knowledge of peaceful community coexistence.	Peaceful community coexistence.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework
15	2 theoretical hours	Knowledge of the rights of people with disabilities.	Rights of people with disabilities.	Lecture theoretical	Discussion and solving exercises, Quiz, Homework

## 11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

## 12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	<ol style="list-style-type: none"> <li>1. Human rights (development - contents - protection) by Prof. Dr. Riad Aziz Hadi</li> <li>2. Human rights, democracy and public freedoms / Dr. Maher Sabry Kazem</li> <li>3. Internet</li> </ol>
Recommended books and references (scientific journals, reports...)	-
Electronic References, Websites	

## Course Description Form

<b>1. Course Name:</b>					
PLANE SURVEYING /3					
<b>2. Course Code:</b>					
<b>3. Semester / Year:</b>					
The first semester of the academic year 2023–2024					
<b>4. Description Preparation Date:</b>					
2222/2/6					
<b>5. Available Attendance Forms:</b>					
In presence					
<b>6. Number of Credit Hours (Total) / Number of Units (Total)</b>					
120 hours of study, 8 hours per week (2) hours of theory (6) hours of practice Number of units (8)					
<b>7. Course administrator's name (mention all, if more than one name)</b>					
Name: Name: Ismaeil Rasool Abdel Moneim Email: ismaeilrasool2017@gmail.com					
<b>8. Course Objectives</b>					
<b>Course Objectives</b>	<ul style="list-style-type: none"> <li>• <b>Knowing how to find horizontal and vertical angles</b></li> <li>• <b>Knowledge of calculating horizontal and vertical distances using electro surveying devices</b></li> <li>• <b>Knowing and performing all measurements and calculations in traversing and tachymetric measurements, and working on implementing various surveying work</b></li> </ul>				
<b>9. Teaching and Learning Strategies</b>					
<b>Strategy</b>	<ul style="list-style-type: none"> <li>• <b>lecture .</b></li> <li>• <b>Discussion and dialogue.</b></li> <li>• <b>Brainstorming .</b></li> </ul>				
<b>10. Course Structure</b>					
<b>Week</b>	<b>Hours</b>	<b>Required Learning Outcomes</b>	<b>Unit or subject name</b>	<b>Learning method</b>	<b>Evaluation method</b>

1		Know the classification and identification of theodolite devices On its main parts and the function of each part	Classification and identification of theodolite devices On its main parts and the function of each part	In presence	Monthly and final exams
2		Know how to read and calculate vertical angles	How to read and calculate vertical angles	In presence	
3		Knowing the types of north direction and how monitor real, magnetic and virtual north	Learn about the types of north direction and how to monitor real, magnetic, and virtual north	In presence	
4		Knowing the student's learning about methods for observing horizontal angles The directional method and iterative method	The student learns how to observe horizontal angles The directional method and the iterative method	In presence	
5		Know the types of polygons their use And its grades (classification)	Types of polygons and their use And its grades (classification)	In presence	
6		Knowing how to make corrections to angles and their types (Interior and exterior angles) polygons Closed circular	Making corrections to all types of angles (Interior and exterior angles) polygons Closed circular	In presence	
7		Knowledge of departure & latitude calculations in Circular polygons Closed And ways to correct it (Compass Rule & Transit Rule).	Knowledge of forward and reverse calculations for point positions.	In presence	
8		Forward calculations and reverse calculations of point positions.	Knowledge of forward and reverse calculations for point positions.	In presence	

9	Knowing the calculation coordinates (point locations) Using departure & latitude Corrected	Calculating coordinates (point locations) Using departure & latitude Corrected	In presence
10	Knowing how to choose appropriate drawing scale preparing maps, designing a	How to choose the appropriate drawing scale in preparing maps, designing a p	In presence
11	Know how to elect Link polygon stations Closed (Connected Traverse)	How to elect link polygon stations Closed (Connected Traverse) And monitor all angles	In presence
12	Knowledge of polygon calculati closed link (composites Horizontal and vertical) calculate coordinates	Closed link polygon calculatio (composites Horizontal and vertical) and calculate coordinates	In presence
13	Knowledge of tachymetric surveying, its purposes and use	Definition of tachymetric surveying, its purposes and use	In presence
14	Knowledge of tachymetric surveying, its purposes and use	Using a theodolite device and ruler The usual way to find distance And the height difference by tangential method	In presence
15	Know the use Theodolite device And the ruler The usual way to find Distances And the difference in heights using the stadia method	Using a theodolite device and ruler The usual way to find distanc And the height difference using the stadia method Method).	In presence

## 11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

## 12. Learning and Teaching Resources

Required textbooks (curricular books, if any)

Main references (sources)

- 1) **Basic Surveying Theory and Practice.**
- 2) **Principles of Surveying, Dr. Gomaa M. Dawod**
1. **Elementary Surveying and**
2. **Surveying, Bouchayd and Moffit 6th edition 1995.**
3. **Surveying theory & Practical, Michael & Anderson 1992.**
4. **Surveying A. Banister & S. Raymond 4th edition.**
5. **Surveying (Vo. 12) B. C. Pummia / Standard Book house "Delhi – India" 1978.**
6. **Surveying ,Principle and Applications, Barry F,**

	<b>Kavanagh, sixth edition 2003.</b>
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	<b>1)www. Geomatics.Com</b> <b>2)www. Surveying.Com</b>



## Course description form

• Course Name	
Fundamentals of photogrammetry and digital scanning	
• Course Code	
• Semester/year	
<b>The first semester of the academic year 2023-2024</b>	
• The date this description was prepared	
<b>2024/2/8</b>	
• Attendance forms available	
<b>My presence</b>	
Number of study hours (total) / number of units (total)	
<b>)30(study hours, (3) hours per week, number of units (3)</b>	
)Name of the course administrator (if more than one name is mentioned •	
<b>Name: Muhammad Riyad Mahmoud</b> <b>Email : <a href="mailto:mohammed.riyadh@mtu.edu.iq">mohammed.riyadh@mtu.edu.iq</a></b>	
• Course objectives	
<ul style="list-style-type: none"> <li>• The student should be able to deal with data Satellite and digital aerial images through software.</li> <li>• Orienting digital aerial photographs to create the model Stereoscopic and stereoscopic purification of the Earth's surface and extraction Information and measurements of Earth's surface features through Stereoscopic vision.</li> <li>• To use modern software to perform the operation Aerial triangulation and straightening process for 3D digital images And DEM extraction of the stereoscopic model and its applications in the field Other software.</li> <li>• Identify the basic concepts of remote sensing And types of satellites.</li> <li>• Dealing with space data and its specifications And their treatments and interpretation.</li> </ul>	<p>Objectives of the study subject</p>

- Teaching and learning strategies

lecture

- Discussion and dialogue
- Brainstorming

teaching strategy

- Course structure

Evaluation method	Learning method	Name of the unit or topic	Required learning outcomes	hours	the week
Monthly and final exams	My presence	Reflectivity of surface phenomena Earth and pattern Natural responses it Reflectivity curves Spectral surface phenomena the earth	Introduction to reflexivity Surface phenomena Earth and pattern Know their normal responses Reflectivity curves Spectral surface phenomena the earth	3	1
	My presence	Sensors aerospace, Satellites (American and French.) ...etc	<b>Knowledge of sensors aerospace, Satellites (American and French.) ...etc</b>	3	2
	My presence	Interpretation of images and satellite data Features of Figure A For the size of the shadow pattern The thickness, composition, location, a For basic factors in interpretation of aerial photographs, not just analysis of the Earth's surface	<b>Knowledge of interpretation of satellite images and data Features shape size Pattern, shades, darkness, composition, location, a r basic factors in interpretation of aerial photographs, not just analysis of the Earth's surface</b>	3	3

	My presence	Digital processing space data (image radiometric correction, removal of distortion and improvement And geometrically corrected.	<b>Knowledge of digital processing of space data (images), radiological correction, removal of distortion and improvement And geometrically corrected.</b>	3	4
	My presence	<b>Create mosaics from digital or aerial photographs using a program Erdas</b>	<b>Knowing how to a job Mosaics from digital aerial photographs or Satellite data using Erdas program</b>	3	5
	My presence	Knowledge digital images And types of discrimination accuracy "Resolution" For the image the pixel coordinate system, the digital image coordinate system, and the ground coordinate system. Part of digital images in different formats Using a program Erdas.	<b>Knowledge of digital images and types of resolution For the image, the pixel coordinate system, the digital image coordinate system, and the ground coordinate system. Part of digital images in different formats Using a program Erdas.</b>	3	6
	My	<b>Fundamentals</b>	Know the basics	3	8+7

	presence	<p><b>of aerial surveying</b>  <b>The hologram</b></p> <p><b>Interior orientation</b>  <b>External orientation and its elements</b> kappaphi  <b>omega absolute" orientation</b></p>	<p>of scanning</p> <p>tereoscopic aerial  interior orientation  external orientation  and its components  kappaphi  "omega."  bsolute orientation</p>		
	My presence	<p>To get to know  e "stereo analyst"  icon is included  Erdas" program "  and explore the bar  Tools."stereo  analyst toolbar</p>	<p><b>ow to get to know</b>  <b>The "stereo analyst" icon is included</b>  <b>rdas" program "</b>  <b>and explore the bar stereo ".Tools</b>  <b>"analyst toolbar</b></p>	3	9
	My presence	<p><b>Model configuration</b>  <b>Digital hologram</b>  <b>Initial and obtaining</b>  <b>tereoscopic vision</b>  <b>primary and Dell storage</b>  <b>.The hologram</b>  <b>Creating a "nonoriented digital stereo model and saving to A/EA image file</b>  <b>Within   implementation</b>  <b>Steps, choose</b>  <b>Left digital image with channel blending set to ""Band</b></p>	<p>Right digital  nd tuning, steering  And rotate images  gital to be parallel  to the flight line  removed  Stay away And  adjust the  distance  Sigmoid, position  floating point on  ,target surface  Store the model  Protozoan</p>	3	11+10

		<p><b>"combination And contrast nd its brightness intensity Choose an image Right digital And tuning, steering And rotate images igital to be arallel to the flight line removed Stay away d adjust the distance Sigmoid, position loating point on rget surface Store the model Protozoan</b></p>			
	My presence	<p><b>rm configuration Greating an " oriented digital stereo model " (DSM)and saving "to an image file Under Perform steps, add images Digital for the model Block and omposition "Blok file" entry information Projection: Enter the flight altitude And focal length d camera</b></p>	<p><b>knowledge rm configuration Greating an " oriented digital stereo model (DSM)and saving "to an image file Under Perform steps, add images Digital for the model Block and omposition "Blok file" entry information Projection: Enter the flight altitude And focal length</b></p>	3	+12 13

		<b>information</b> digital for guidance Internal and external For the left image nd the right one in a row, then store it	and camera information digital for guidance Internal and external For the left image nd the right one in a row, then store it		
	My presence	Verify the accuracy of the model Digital hologram	Scoop on ow to check the accuracy of the model Digital hologram	3	15+14

- Course evaluation

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

- Learning and teaching resources

	Required textbooks (methodology, if any)
<p>יוון ירון</p> <p>ereo Analyst",User'sguid ,Leica " .1  ospatial Imaging,USA,2008 2.  eica photogrammetry suite project  anager", Users guide Leica  osystem Geospatial Image,  USA,2008  ecaPhotogrammetry Suite, " .3  omatic Terran Extraction", Users  ide Leica Geosystem Geospatial  Image, USA,2008  annual of photogrammetry" ,Us " .4  .Army Crops of Engineers  gital photogrammetry A " .5  rtical Course", Wilfried Linder,  Springer .2009  isc of Geomatics ", Mario A. " .6  marasca, Springer 2009 7. "  annual of Remote Sensing ", US Army</p>	<p>Main references (sources</p>

**ops of Engineers, EM 1110-2-2907,2003**  
**Introduction to the Physics and " .8**  
**chniques of remote Sensing**  
**Charles Elachi, Jakob Van Zyl John**  
**Wily & Sons ,2006**  
**34**  
 Geographic Information Systems" “.9  
 IS, foundations and applications by Dr.  
 Ali Abbas Al-Azzawi, University  
 Mosul 2009  
 Geoinformation Remote Sensing, “.10  
 Photogrammetry and Geographic  
 formation System”, Gottfried Konecny,  
 Taylor & Francis Group, London, 2003  
 RDAS IMAGINGE Tour Guide, Leica .11  
 Geosystems Geospatial Imaging, USA,  
 2006  
 Aerial survey, Doctor Nassif, Louise  
 Khalil, Khaled Hilal Sarhan, Technical  
 .Education Authority  
 Second edition 1999

**Recommended supporting books and references (scientific journals, reports)....**

**Electronic references, Internet sites**

## نموذج وصف المقرر

1. Course name					
<b>Principles of Cartography (1)</b>					
2. Course symbol					
3. Semester/year					
First course 2024 -2023					
4. date of preparation of this Course					
5/2/2024					
5. Teaching methods					
Directly in the classroom					
6. Number of study hours (total)/number of units (total)					
75study hours, 30 theoretical hours - 45 practical hours					
7. Name of course teacher					
Name: M. Ahmed Kareem jebur Email: <a href="mailto:ahmed.kareem@mtu.edu.iq">ahmed.kareem@mtu.edu.iq</a>					
8. Course objectives					
<p>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</p>			<p><b>Objectives of the study subject</b></p>		
9. Teaching and learning strategies					
lecture - Discussion and dialogue - -					strategies
10. Course structure					
Evaluation method	Learning method	Name of the unit or subject	Required learning outcomes	hours	the week
<b>Monthly and final exam</b>	directly	Principles of mapping technology and its relationship to land surveying	<b>Learn about cartography, types of maps, and how to</b>	5	1
	directly	Types of maps (topographic, level, cadastral, thematic, administrative, geographic, and charts), classification of maps, map elements		5	2
	directly	Drawing scale, scale and its relationship to -floor area		5	3
	directly	.Geographical and quadratic coordinates		5	5-4
	directly	How to find the appropriate drawing scale depending on the dimensions of the drawing board Methods of measuring distances and areas		5	7-6



		<b>on maps depending on the scale</b>			
	directly	Map projections (definition, classification, deviations). Cylindrical projections, regular projections		5	8
	directly	Conic Projectors, Lambert Projection, Simple Conic Projector (with one standard latitude and two standard )latitudes		5	9
	directly	Conical projections, equal-area Bonn projections		5	10
	directly	Indexing of topographic maps		5	11
	directly	The role and importance of colors in maps, color systems, color value contrast, color sizes, color selection		5	12
	directly	Topographic symbols (locational, linear, and cadastral symbols) and their classification		5	13
	directly	Layout of topographic maps and line specifications, ways to implement it in .maps		5	14
	directly	Map design (topographic map elements and their functions) and visual balance .between map components		5	15

### 11. Course evaluation

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

### 12. Learning and teaching references

	Required course books
المصادر:- -1 1982 بغداد -2 -3 4- Keats,J,S., "Cartography Design and Production", 3 <sup>rd</sup> Ed., 1980 5- Robinson,J,S., "Elements of cartography", 8 <sup>th</sup> Ed., Esri Press; Eighth edition (November 7, 2016)	Main references
	Recommended supporting books and )...references (scientific journals, reports
	Electronic references, Internet sites

## Course Description Form

1. Course Name:

Engineering and cadastral surveying

2. Course Code:

3. Semester / Year:

First semester 2023/2024

4. Description Preparation Date:

2024

5. Available Attendance Forms:

My presence

6. Number of Credit Hours (Total) / Number of Units (Total)

(75) hours, (5) hours per week. Number of units (5)

7. Course administrator's name (mention all, if more than one name)

Name: baydaa ismail ibrahim

Email: [baydaa.ismail@mtu.edu.iq](mailto:baydaa.ismail@mtu.edu.iq)

8. Course Objectives

Course Objectives

- The student will be able to "recognize the geomorphologic phenomena that he surveys
- draw and how to identify them in geological maps and aerial photographs, as well as identify the types of sediments, minerals, atmospheres
- the movement of land masses and their prevention. In addition to the geology of the sites of dams and reservoirs

9. Teaching and Learning Strategies

Strategy

- lecture
- Discussion and dialogue
- Brainstorming

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name		Evaluati
1	5	Learn about engineering surveying Drawing scale and area calculation In the right	An introduction to the geometric and cadastral survey and the scale used for each case, with an explanation of the different methods for calculating the areas in the field, including: the areas of regular shapes, and the division into regular geometric shapes such as triangles, squares, rectangles, trapezoids, circles and their parts	My presence	Semester tests and exams and a final exam
2	5	Learn how to erect columns At equal intervals	erecting columns at equal intervals (in a trapezoidal Simpson's method), erecting columns at unequal intervals on the survey line for a plot of land and calculating their areas by all the methods indicat		
3	5	Learn how Coordinates in the account Spaces	Using the coordinates method in calculating the areas, the method of the longitude multiplier (D.M.D) method.		
4	5	Learn how to calculate Areas on the map in ways Unhinged	he different methods for calculating areas from the map include: dividing into regular geometric shapes such as triangles or squares or using graph papers, using slides, using an electronic planometer to calculate areas (when the fixation point is i		
5	5	How to calculate soil Quantities in many ways	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.		
6	5	Learn how to clear roads	Getting to know road surveying: It includes ground surveying and aerial surveying methods used to determine the path of the center line of the road. Types of vertical curves used on roads: symbols, terms, and laws related to them and for calculating levels on them (geometric method), asymmetric vertical curves (their elements and calculations), calculating dirt quantities for a road section that contains convex and concave vertical curves and a constant slope.		
7	5	Identify the types of curves	identifying the types of vertical curves: (the convex curve and the concave curve) and the equation for 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 algebraic difference between the two slopes and equivalent radius.		
8	5	circular horizontal curve, symbols, terms, laws, specifications in terms of the relationship of radius to vehicle speed	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)		
9	5	Solve the compound cyclic	Compound and inverted circular horizontal		

		curve And the inverse	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		
10	5	Identify the cause of dysfunctional methods To project the circular curve Simple	The various methods for projecting a simple circular curve include: 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).		
11	5	How to use columns in Projection of curves	The method of using columns to project curves (columns on the tangent and the 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).		
12	5	Identify the types of curves Trans	transitional or spiral curves: their types, use, and calculations (clothoid, 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		
13	5	perform the necessary calculations for the curves	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.		
14	5	Calculate cross-sectional areas	Calculate the cross-sectional areas of the project and the sizes of the dirt quantities, draw the dust transfer curve, and indicate the width of the excavation and backfill on both sides of the actual center line of the project.		
15	5	Installing and straightening lines and channels And sewers	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.		

### 11.Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

### 12.Learning and Teaching Resources

Required textbooks (curricular books, if any)

Main references (sources)

- 1-** Principles of engineering geology and its applications, authored by Majeed Aboud Jassim Al-Tai, University of Basra, 2001.
- 2-** Engineering Geology, Miqdad Hussein Ali, Bassem Rushdi Hijab, Sinan Hashem Al-Jassar, University of Baghdad, 1990.
- 3-** Foundations of Geology for Engineers, Kenana Muhammad Thabet, Muhammad Omar Al-Ashho, University of Mosul, 1993

	<p><b>-4Principles of Geology and Geomorphology,</b> Ghada Muhammad Salim, Muhammad Mahdi Abbas, Fadel Nomas Al-Saadouni, Institute of Technical Institutes, 1984</p>
Recommended books and references (scientific journals, reports...)	
Electronic References, Website	

## Course Description Form

<b>1. Course Name:</b>					
Computer applications (civil 3d(1)).					
<b>2. Course Code:</b>					
<b>3. Semester / Year:</b>					
The first semester of the academic year 2023–2024					
<b>4. Description Preparation Date:</b>					
2024/2/6					
<b>5. Available Attendance Forms:</b>					
In presence					
<b>6. Number of Credit Hours (Total) / Number of Units (Total)</b>					
45 study hours, 3 hours per week, number of units (3)					
<b>7. Course administrator's name (mention all, if more than one name)</b>					
Name: Name: Ismaeil Rasool Abdel Moneim Email: ismaeilrasool2017@gmail.com					
<b>8. Course Objectives</b>					
<b>Course Objectives</b>		<ul style="list-style-type: none"> <li>• – Knowledge of using the Civil 3d program for the purpose of representing d monitored in the field in monitoring devices Such as Total station, DGPS</li> <li>– Knowing how to display points in the form of a map, according to the purpos e that work.</li> </ul>			
<b>9. Teaching and Learning Strategies</b>					
<b>Strategy</b>		<ul style="list-style-type: none"> <li>•lecture .</li> <li>• Discussion and dialogue.</li> <li>•Brainstorming .</li> </ul>			
<b>10. Course Structure</b>					
<b>Week</b>	<b>Hours</b>	<b>Required Learning Outcomes</b>	<b>Unit or subject name</b>	<b>Learning method</b>	<b>Evaluation method</b>

1		Know the Comparison between AutoCAD Normal and Civil 3D, main menus File types	Introduction: Comparison regular AutoCAD Civil 3D, main menus, filetype	In presence	Monthly and final exams
2		Knowledge of creating a project draft Within design specifications	Create a draft of the project Within design specifications	In presence	
3		Knowledge of working with raster bars	Working with raster bars	In presence	
4		Know the formation of points	Configure points	In presence	
5		Know the formation of points	Configure points	In presence	
6		Know the organization of points	Organizing points	In presence	
7		Knowledge of importing points	Import points	In presence	
8		Know the Modifying the properties of points	Modifying the properties of points	In presence	
9		Knowledge of dealing with Point style And Label style	Dealing with Point style and Label style	In presence	
10		Knowing how to create surfaces and then defining them desired surface	Create surfaces and then define the desired surface	In presence	
11		Knowing the line Delete And Add line.... and others	Delete line and Add line.... And others	In presence	

12		Knowing how to Modify contour lines	Modify contour lines	In presence	
13		Knowledge of drawing paths Alignment In two ways: 1- polyline 2 -layout	Drawing paths Alignment in two ways: 1- polyline 2-layout	In presence	
14		Knowing the modification of path properties	Modifying the path properties	In presence	
15		Knowledge of creating clips drawing Design project line	Creating sections and drawing the line of the design project	In presence	

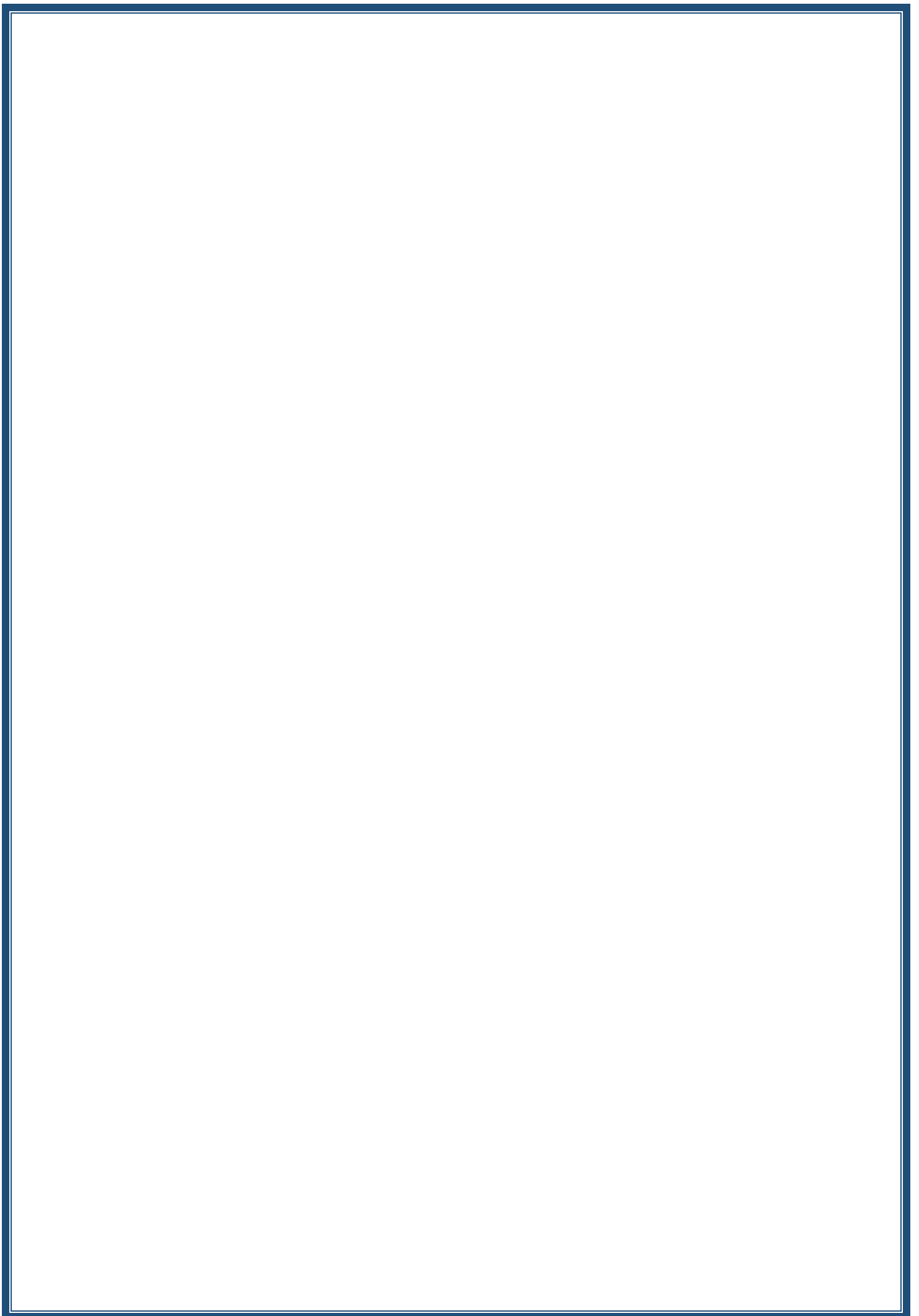
### 11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports ... etc

### 12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	<p>1- Explanation of the Civil 3D program, engineer Khaled Ahmed Abdel Karim</p> <p>2- - Practical reference in AutoCAD Civil 3D 2018 / Engineer Walid Khaled Ali</p>
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	





## Course Description Form

1. Course Name:	
Geographical Information System	
2. Course Code:	
3. Semester / Year:	
1st Semester 2023–2024	
4. Description Preparation Date:	
5/2/2024	
5. Available Attendance Forms:	
Blended	
6. Number of Credit Hours (Total) / Number of Units (Total)	
45 Hours (3 hours per week)	
7. Course administrator's name (mention all, if more than one name)	
Name: Asst.Lec. Ali Hussein Alwan	
Email: ali_hussein@mtu.edu.iq	
8. Course Objectives	
Course Objectives	<ul style="list-style-type: none"><li>• Recognize the principles of cartography and its integration with specialty topics such as surveying and aerial surveying</li><li>• Able to prepare maps and raise the student's competence (performance).</li><li>• Skill in preparing, designing, drawing and producing maps.</li></ul>
9. Teaching and Learning Strategies	
Strategy	<ul style="list-style-type: none"><li>• Use the presentation method.</li><li>• Draw illustrative diagrams.</li><li>• The method of brainstorming.</li></ul>

## 10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Geographical information system concept	Geographical information system concept	Theory	Monthly and final exams.
2	2	Data entry (recall) methods (aerial and satellite images)	Data entry (recall) methods (aerial and satellite images)	Theory	
3	2	Geometric correction of the topographical map	Geometric correction of the topographical map	Theory	
4	2	Geometric Correction of the Satellite Image and RMSE	Geometric Correction of the Satellite Image and RMSE	Theory	
5-6	2	How to set up a new project using the Arc Catalog program and introduce it to the global projection system WGS1984	How to set up a new project using the Arc Catalog program and introduce it to the global projection system WGS1984	Theory	
7-8	2	Drawing tools app	Drawing tools app	Theory	
9	2	Advanced Editing Tools	Advanced Editing Tools	Theory	
10	2	Methods for enlarging and reducing the features and methods for selecting the drawn features	Methods for enlarging and reducing the features and methods for selecting the drawn features	Theory	

11	2	Descriptive tables for the features of each layer drawn	Descriptive tables for the features of each layer drawn	Theory
12	2	Layers Properties window, including Labeling according to the distribution tables field data,	Layers Properties window, including Labeling according to the distribution tables field data,	Theory
13	2	Selection menu	Selection menu	Theory
4		Preparing thematic maps (contour and field data).	Preparing thematic maps (contour and field data).	Theory
15		Final preparation of all map elements	Final preparation of all map elements	Theory

### 11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc.

### 12. Learning and Teaching Resources

Required textbooks (curricular books, if any)

Main references (sources)

- الغادة لنصمهم وتطوير المناهج، المملكة العربية ال  
**1.**  
**2.** نظ  
 المهندس هبم يوسف زرزقة **0**  
**3.**  
 إدومحمد بوعوب  
 العربية.

Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

## Course Description Form

1. Course Name:	
English Language	
2. Course Code:	
3. Semester / Year:	
2nd Semester 2023–2024	
4. Description Preparation Date:	
5/2/2024	
5. Available Attendance Forms:	
Blended	
6. Number of Credit Hours (Total) / Number of Units (Total)	
30 Hours (2 hours per week)	
7. Course administrator's name (mention all, if more than one name)	
Name: Thear Qasim Mazhe	
Email:	
8. Course Objectives	
Course Objectives	Improving students' skills in English language, developing their reading, writing and listening abilities, and enable them to write scientific reports in English language.
9. Teaching and Learning Strategies	
Strategy	<ul style="list-style-type: none"><li>• Use the presentation method.</li><li>• Draw illustrative diagrams.</li><li>• The method of brainstorming.</li></ul>

## 10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Tenses. Questions. Jobs. Writing an informal letter	Tenses. Questions. Jobs. Writing an informal letter	Theory	Monthly and final exams.
2	2	Present tense, have/ have got	Present tense, have/ have got	Theory	
3	2	Things in the house. Writing-linking words	Things in the house. Writing-linking words	Theory	
4	2	Past tense. Past continuous, have + noun, writing a story 1	Past tense. Past continuous, have + noun, writing a story 1	Theory	
5	2	Count and uncount nouns. Expressions of quantity. Articles, plural nouns, clothes. Writing-forms	Count and uncount nouns. Expressions of quantity. Articles, plural nouns, clothes. Writing-forms	Theory	
6	2	Verb patterns. Future forms. Words that go together. Writing a postcard	Verb patterns. Future forms. Words that go together. Writing a postcard	Theory	
7	2	What.... Like??. Comparatives and superlatives. Adjectives. Writing-describing a place	What.... Like??. Comparatives and superlatives. Adjectives. Writing- describing a place	Theory	
8	2	Present perfect. Men and women. Writing a biography	Present perfect. Men and women. Writing a biography	Theory	
9	2	Have (got) to, should and most. Job descriptions. Writing a formal letter 1	Have (got) to, should and most. Job descriptions. Writing a formal letter 1	Theory	
10	2	Conditional clauses. Time clauses. Preposition + word. Writing- discussing ideas	Conditional clauses. Time clauses. Preposition + word. Writing- discussing ideas	Theory	
11	2	Verb patterns, used to. Infinitive. Rhymes. Writing-formal and informal letters 1	Verb patterns, used to. Infinitive. Rhymes. Writing-formal and informal letters 1	Theory	
12	2	The passive. Words with more than one meaning. Writing a review	The passive. Words with more than one meaning. Writing a review	Theory	
13	2	Second conditional, might, phrasal verbs. Writing a story 2	Second conditional, might, phrasal verbs. Writing a story 2	Theory	
14	2	Present perfect Simple & continuous. Words that sound the same. Expressions in letter writing	Present perfect Simple & continuous. Words that sound the same. Expressions in letter writing	Theory	
15	2	Past perfect. Reported statements.	Past perfect. Reported statements.	Theory	

## 11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports ....etc.

## 12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	<b>New headway Plus, Pre-Intermediate Student's book by John &amp; Liz Soars Press. Oxford</b> <b>New headway Plus, Pre-Intermediate Workbook by John &amp; Liz Soars Pre Oxford.</b>
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	



## Course Description Form

<b>1. Course Name:</b>					
PLANE SURVEYING /4					
<b>2. Course Code:</b>					
<b>3. Semester / Year:</b>					
The first semester of the academic year 2023–2024					
<b>4. Description Preparation Date:</b>					
2024/2/6					
<b>5. Available Attendance Forms:</b>					
In presence					
<b>6. Number of Credit Hours (Total) / Number of Units (Total)</b>					
120 hours of study, 8 hours per week (2) hours of theory (6) hours of practice Number of units (8)					
<b>7. Course administrator's name (mention all, if more than one name)</b>					
Name: Ismaeil Rasool Abdel Moneim Email: ismaeilrasool2017@gmail.com					
<b>8. Course Objectives</b>					
<b>Course Objectives</b>		<ul style="list-style-type: none"> <li>• Knowledge of the Global Positioning System (GPS) and how it works</li> <li>• Know the characteristics of different monitoring methods</li> <li>• Knowledge of monitoring, practical and office steps</li> </ul>			
<b>9. Teaching and Learning Strategies</b>					
<b>Strategy</b>		<ul style="list-style-type: none"> <li>•lecture .</li> <li>• Discussion and dialogue.</li> <li>•Brainstorming .</li> </ul>			
<b>10. Course Structure</b>					
<b>Week</b>	<b>Hours</b>	<b>Required Learning Outcomes</b>	<b>Unit or subject name</b>	<b>Learning method</b>	<b>Evaluation method</b>

1	Knowing the Horizontal control networks (triangulation networks), their types, degrees, accuracy, classification methods	Horizontal control networks (triangulation networks), their types, degrees, accuracy, and classification methods	In presence	Monthly and final exams
2	Knowing The student learned how to calculate the shape strength of various types of networks and conditions for achieving angles, sides, and stations	The student learned how to calculate the shape strength of various types of networks and the conditions for achieving angles, sides, and stations	In presence	
3	Knowing The Measuring angles in triangulation operations with correcting stations and calculating side lengths using law of sines and cosines	Measuring angles in triangulation operations with correcting stations and calculating side lengths using law of sines and cosines	In presence	
4	Knowing The Definition of the coordinate system, the most important different global coordinate systems and methods of converting between them.	Definition of the coordinate system, the most important different global coordinate systems and methods of converting between them.	In presence	
5	Knowing The Spherical augmentation, correcting the angles of spherical triangles	Spherical augmentation, correcting the angles of spherical triangles	In presence	
6	Knowing The Theoretical foundations in the use of electronic devices (T.S., EDM), their types, accuracy, ranges,	Theoretical foundations in the use of electronic devices (T.S., EDM), their types, accuracy, ranges,	In presence	
7	Knowing The Total station devices	Total station devices	In presence	
8	Knowing The Surveying using (T.S)	Surveying using (T.S)	In presence	
9	Knowing The Stakout using (T.S)	Stakout using (T.S)	In presence	

10	Knowing The Remote Height & (Area & Volume).	Remote Height & (Area & Volume).	In presence
11	Knowing The Resection operations and finding device coordinates from two or more points using Free Station.	Resection operations and finding device coordinates from two or more points using Free Station.	In presence
12	Knowing The Global Positioning System	Global Positioning System	In presence
13	Knowing The How the Global Positioning System works.	How the Global Positioning System works.	In presence
14	Knowing The Methods for finding locations using GPS (absolute method and relative method).	Methods for finding locations using GPS (absolute method and relative method).	In presence
15	Knowing The How to monitor a network of points using a GPS device.	How to monitor a network of points using a GPS device.	In presence

### 11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

### 12. Learning and Teaching Resources

Required textbooks (curricular books, if any)

Main references (sources)

- 1) **Basic Surveying Theory and Practice.**
- 2) **Principles of Surveying, Dr. Gomaa M. Dawod**
1. **Elementary Surveying and**
2. **Surveying, Bouchayd and Moffit 6th edition 1995.**
3. **Surveying theory & Practical, Michael & Anderson 1992.**
4. **Surveying A. Banister & S. Raymond 4th edition.**
5. **Surveying (Vo. 12) B. C. Pummia / Standard Book house "Delhi – India" 1978.**
6. **Surveying ,Principle and Applications, Barry F, Kavanagh, sixth edition 2003.**

Electronic References, Websites

- 1) **www. Geomatics.Com**
- 2) **www. Surveying.Com**

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## Course description form

1. Name of the course

Fundamentals of photogrammetry and digital scanning

1. Course code

2. Semester/year

The second semester of the academic year 2023-2024

3. The date this description was prepared

**2024/2/8**

4. Available forms of attendance

My presence

5. Number of study hours (total)/number of units (total)

30(study hours, (3) hours per week, number of units (3.)

1. Name of the course administrator (if more than one name is mentioned)

:

محم

د

ربوا

م:

2. Course objectives

The student should be able to deal with data  
Satellite and digital aerial images through software  
.2.Orienting digital aerial photographs to create the  
model  
Stereoscopic and stereoscopic purification of the  
Earth's surface and extraction  
Information and measurements of Earth's surface  
features through  
Stereoscopic vision.  
.3.To use modern software to perform the operation  
Aerial triangulation and straightening process for  
3D digital images  
And DEM extraction of the stereoscopic model and  
its applications in the field

Objectives of the study  
subject

<p><b>Other software.</b></p> <p><b>.4Identify the basic concepts of remote sensing And types of satellites.</b></p> <p><b>.5Dealing with space data and its specifications And their treatments and interpretation</b></p> <p>.</p>	
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**1. Teaching and learning strategies**

<ul style="list-style-type: none"> <li>• <b>lecture</b></li> <li>• <b>Discussion and dialogue</b></li> <li>• <b>Brainstorming</b></li> </ul>	<p>The strategy</p>
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**2. Course structure**

Evaluation method	method	Name of the unit or topic	Required learning outcomes	Hours	Th week

<p>Monthly and final exams</p>	<p>Get information and measurements from Digital mockup  D information  "measuring  "  Through stereoscopic vision, measurement is made from The digital holographic model, which includes  Draw the first and second points.  Determine its coordinates "Y  Polyline with selection  Its length, slope, angle and difference  The height and level of the starting point  The end of the fifth line is the total rate  As well as defining and drawing the polygon  "polygon" and calculate the area of the polygon  And the lengths of its sides and determine the angles between each  Three points and then store the information</p>	<p>Knowledge of obtaining information and measurement from the stereoscopic model  Digital  3D information  "measuring  "  Measurement is made through stereoscopic vision  From the digital holographic model  Which includes the first and second fees  Points and determine their coordinates  "Y  Fonts "polyline" with  Determine their lengths, slope and angle  The difference in height and lev of a point  The beginning and end of the fifth line  Total attribution rate as well  Define and draw the polygon  "polygon" and calculate area  Determine the polygon and its side lengths  The angles between every thre points and then  Store information</p>	<p>3</p>	<p>2+1</p>
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	My presence	<p>To get to know the bar  Program features  "Stereo analyst feature toolbar"  Drawing and preparing maps from the stereoscopic model  Digital and GIS data editing  Third Fourth  " Collecting and editing 3D GIS data"  By creating a new project, getting acquainted  On related groups and categories  With landmarks and their characteristics, building drawing  Roads, rivers, forests...etc  Image features through vision  Stereoscopic</p>	<p>Get to know the bar  Program features  "Stereo analyst feature toolbar"  Drawing and preparing maps from the stereoscopic model  Digital and GIS data editing  Third Fourth  " Collecting and editing 3D GIS data"  By creating a new project, getting acquainted  On related groups and categories  With landmarks and their characteristics, building drawings  Roads, rivers, forests...etc  Image features through vision  Stereoscopic</p>	3	<b>4+3</b> <b>5+</b>
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My presence	<p>Create a project from arial photographs Digital and aerial triangulation And the calendar process 3D images</p> <p>Greating a new project and performingn aerial triangulation and orthorectify the images (b usin LPS) It is implemented through the following basic steps: Sixth + Seventh Eighth</p> <ul style="list-style-type: none"> <li>-creat anew project</li> <li>-Add imagery to the block file</li> <li>-Define the camera model</li> <li>-measure Geps and check points</li> <li>-use the automatic tie poin collection function</li> <li>-Triangulate the images</li> <li>-Orthorectify the images</li> <li>-view the ortho images</li> <li>-save the block file</li> </ul>	<p>Creating a project from digital aerial photograph and conducting the aerial triangulation and evaluation process 3D images Greating a new project an performing aerial triangulation and orthorectifying the image (by usin LPS) It is implemented throug the following basic steps: Sixth + Seventh Eighth- creat anew project</p> <ul style="list-style-type: none"> <li>-Add imagery to the bloc file</li> <li>-Define the camera mode</li> <li>-measure Geps and check points</li> <li>-use the automatic tie poi collection function</li> <li>-Triangulate the images</li> <li>-Orthorectify the images</li> <li>-view the ortho images</li> <li>-save the block file</li> </ul>	3	7+6 8+
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My presence	<p>To automatically extract a digital model of the Earth's surface "Automatic terrain extraction"</p> <p>The above topic can be implemented through the following basic steps:-</p> <ul style="list-style-type: none"> <li>-Open an existing block file</li> </ul> <p>Check the automatically extracted tie</p> <p>Points in the point measurement tool</p> <p>Set DTM extraction options</p> <p>Edit the general tab contents</p> <p>View and manipulate images in the image pair tab</p> <p>Edit the area selection tab contents</p> <p>Page 67 of 80</p> <p>Edit the accuracy tab contents</p> <p>act and view the DTM- the output contour map- the output DTM point status image the block file</p>	<p>To automatically extract a digital model of the Earth's surface "Automatic terrain extraction"</p> <p>The above topic can be implemented through the following basic steps:-</p> <ul style="list-style-type: none"> <li>-</li> <li>-Open an existing block file</li> </ul> <p>Check the automatically extracted tie</p> <p>Points in the point measurement tool</p> <p>Set DTM extraction options</p> <p>Edit the general tab contents</p> <p>View and manipulate images in the image pair tab</p> <p>Edit the area selection tab contents</p> <p>Page 67 of 80</p> <p>Edit the accuracy tab contents</p> <p>act and view the DTM- the output contour map- the output DTM point status image the block file</p>	3	<p><b>10+9</b> <b>11+</b></p>
My presence	<p>Applications of using (DTM) in the field</p> <p>The right information systems (GIS) create the 3D model, draw contour lines and sections</p> <p>IX+</p>	<p>Applications of using (DTM) in the field of information systems</p> <p>Right in (GIS) and configuring the 3D model by drawing contour lines and sections</p> <p>IX+</p>	3	<p><b>+12</b> <b>15</b></p>

### 3. Course evaluation

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

#### 4. Learning and teaching resources

	Required textbooks (methodology, if any)
<p>30</p> <p>" .1Stereo Analyst", User'sguid ,Leica Geospatial Imaging, USA,2008</p> <p>2. "Leica photogrammetry suite project manager",Users guide Leica Geosystem Geospatial Image, USA,2008</p> <p>" .3LiicaPhotogrammetry Suite, Automati Terran Extraction", Users guide Leica Geosystem Geospatial Image, USA,2008</p> <p>" .4Manual of photogrammetry" ,Us Ar Crops of Engineers.</p> <p>" .5Digital photogrammetry A Parctical Course", Wilfried Linder, Springer ,2009</p> <p>" .6Baisc of Geomatics ", Mario A. Gomasasca, Springer,2009</p> <p>7. " Manual o Remote Sensing ". US Army Crops of Engineers, EM 1110-2-2907,2003</p> <p>" .8Introuduction to the Physics and Technigues of remote Sensing ",Charles Elachi, Jakob Van Zyl ,John Wily &amp; Sons ,2006</p> <p>“ .9GIS Foundations and Applications” b Dr. Ali Abbas Al-Azzawi, University of Geographic Information Systems Mosul 2009</p>	Main references (sources)
	Recommended supporting books and references (scientific journals, reports)....
	Electronic references, Internet sites

## نموذج وصف المقرر

1. Course name					
<b>Principles of Cartography (2)</b>					
2. Course symbol					
3. Semester/year					
First course 2024 -2023					
4. date of preparation of this Course					
5/2/2024					
5. Teaching methods					
Directly in the classroom					
6. Number of study hours (total)/number of units (total)					
75study hours, 30 theoretical hours - 45 practical hours					
7. Name of course teacher					
Name: M. Ahmed Kareem jebur Email: <a href="mailto:ahmed.kareem@mtu.edu.iq">ahmed.kareem@mtu.edu.iq</a>					
8. 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			<b>Objectives of the study subject</b>		
9. Teaching and learning strategies					
<ul style="list-style-type: none"> <li>- lecture</li> <li>- -Discussion and dialogue</li> </ul>					strategies
10. Course structure					
Evaluation method	Learning method	Name of the unit or subject	Required learning outcomes	hours	the week
<b>Monthly and final exam</b>	directly	Map design (design concept and principles), point and line patterns in various shapes	<b>Learn about cartography, types of maps, and how to create,</b>	5	1
	directly	How to prepare the base map, inking method (separating and installing colors), .copying and printing of maps		5	2
	directly	Cartographic generalization		5	3
	directly	Cartographic generalization (locational displacement and demarcation )exaggeration		5	5-4
	directly	)Thematic maps (definition, sources, types		5	7-6
	directly	Statistical maps and distribution maps		5	8

		<b>.and applying colors to them</b>			
	directly	<b>Charts, their types and importance</b>		5	9
	directly	<b>Electronic maps, digital maps</b>		5	10
	directly	<b>Contour maps and the Surfer program</b>		5	11
	directly	<b>Modifying the specifications of the digital contour map</b>		5	12
	directly	<b>How to prepare a 3D digital contour map with all its elements</b>		5	13
	directly	<b>Preparing a project using the Arc Catalog program, choosing the WGS1984 system</b>		5	14
	directly	<b>Preparing layers of topographic features</b>		5	15

### 11. Course evaluation

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

### 12. Learning and teaching references

	Required course books
المصادر:- -1 1982 بغداد -2 -3 4- Keats,J,S., <b>"Cartography Design and Production"</b> ,3 <sup>rd</sup> Ed.,1980 5- Robinson,J,S., <b>"Elements of cartography"</b> ,8 <sup>th</sup> Ed., Esri Press; Eighth edition (November 7, 2016)	<b>Main references</b>
	Recommended supporting books and references (scientific journals, reports)....
	Electronic references, Internet sites

## Course Description Form

1.Course Name:

Engineering and cadastral surveying

2.Course Code:

3.Semester / Year:

second semester 2023/2024

4.Description Preparation Date:

2024

5.Available Attendance Forms:

My presence

6.Number of Credit Hours (Total) / Number of Units (Total)

(75) hours, (5) hours per week. Number of units (5)

7.Course administrator's name (mention all, if more than one name)

Name: baydaa ismail ibrahim

Email: [baydaa.ismail@mtu.edu.iq](mailto:baydaa.ismail@mtu.edu.iq)

8.Course Objectives

Course Objectives

- The student will be able to "recognize the geomorphologic phenomena that he surveys
- draw and how to identify them in geological maps and aerial photographs, as well as identify the types of sediments, minerals, atmospheres
- the movement of land masses and their prevention. In addition to the geology of the sites of dams and reservoirs

9.Teaching and Learning Strategies

Strategy

- lecture
- Discussion and dialogue
- Brainstorming

1. Course Structure

	Hours	Required Learning Outcomes	Unit or subject name		Evaluation

1	5	Calculate angles and directions And ways to correct it	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 (by the compass method), calculating the corrected lengths and directions (inverse calculations for the sides).	Semester tests and exams and a final exam
2	5		The unknown intersections or measurements in the process of ribbing and triangulation include: The first intersection (to find two unknown lengths) using the <u>methods of trigonometry and the laws of ribbing.</u>	
3		Solving the unknown intersections in the process of Ribbing	Using the methods of analytical geometry and coordinate rotation, applications in road intersections and land division	
4		Applications in crossroads and division of Lands	The second intersection. (To find the length of one side and the direction of another side) using the <u>trigonometry method.</u>	
5		applications in road intersections and land division	Using the laws of ribbing, analytical geometry, and their applications in road intersections and land division.	
6		Find unknown length and side using... Triangle method	The third intersection. (To find the directions of the two unknown sides) using the trigonometric method.	
7	5	Know what a backcross is	Using the analytical geometric method, its <u>applications in road intersections and land division</u>	
8	5	To find the location of a select point	Finding the unknown measurements (lengths and directions) in circular and connected polygons using different intersections with examples of the types mentioned above <u>Find</u>	
9	5	Learn how to prepare tables	Back or reverse intersection: to find the location of a select point by observing three points with known horizontal locations for three different (or possible) cases.	
10	5	To find unknown measurements	How to prepare a table with logical steps to find unknown measurements for various problems using three intercepts, forward and inverse calculations, and back intercepts.	
11	5	Learn about dividing polygons	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 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 <u>land for multiple cases</u>	
12	5	And division of lands	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 <u>multiple practical cases.</u>	

13	5	Know how to divide a polygon into	A small project to divide large lands using different calculations and intersections and according to certain specifications for areas, street dimensions and radii.		
14	5	Two parts of equal area	Complete the project calculations and draw its horizontal plan		
15	5	Completing a small project divide	Draw its longitudinal section, and conduct discussions about the final results of dividing the plot of land		

### 11.Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

### 12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	<ol style="list-style-type: none"> <li>1- Principles of engineering geology and its applications, authored by Majeed Aboud Jassim Al-Tai, University of Basra, 2001.</li> <li>2- Engineering Geology, Miqdad Hussein Ali, Bassem Rushdi Hijab, Sinan Hashem Al-Jassar, University of Baghdad, 1990.</li> <li>3- Foundations of Geology for Engineers, Kenana Muhammad Thabet, Muhammad Omar Al-Ashho, University of Mosul, 1993</li> <li>4-Principles of Geology and Geomorphology, Ghada Muhammad Salim, Muhammad Mahdi Abbas, Fadel Nomas Al-Saadouni, Institute of Technical Institutes, 1984</li> </ol>
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	



## Course Description Form

<b>1. Course Name:</b>					
Computer applications (civil 3d(2).					
<b>2. Course Code:</b>					
<b>3. Semester / Year:</b>					
The first semester of the academic year 2023–2024					
<b>4. Description Preparation Date:</b>					
2024/2/6					
<b>5. Available Attendance Forms:</b>					
In presence					
<b>6. Number of Credit Hours (Total) / Number of Units (Total)</b>					
45 study hours, 3 hours per week, number of units (3)					
<b>7. Course administrator's name (mention all, if more than one name)</b>					
Name: Name: Ismaeil Rasool Abdel Moneim Email: ismaeilrasool2017@gmail.com					
<b>8. Course Objectives</b>					
<b>Course Objectives</b>		<ul style="list-style-type: none"> <li>• – Knowledge of using the Civil 3d program for the purpose of representing d monitored in the field in monitoring devices Such as Total station, DGPS</li> <li>– Knowing how to display points in the form of a map, according to the purpos e that work.</li> </ul>			
<b>9. Teaching and Learning Strategies</b>					
<b>Strategy</b>		<ul style="list-style-type: none"> <li>•lecture .</li> <li>• Discussion and dialogue.</li> <li>•Brainstorming .</li> </ul>			
<b>10. Course Structure</b>					
<b>Week</b>	<b>Hours</b>	<b>Required Learning Outcomes</b>	<b>Unit or subject name</b>	<b>Learning method</b>	<b>Evaluation method</b>

1		Knowledge of creating cross sections Draw the design project line	Create cross sections and draw a line Design project	In presence	Monthly and final exams
2		Know the cross sections and draw Design project line	cross sections and draw Design project line		
3		Knowledge of drawing design sections	drawing design sections		
4		Knowledge of drawing design sections			
5		Knowledge of drawing design sections of the natural land from the corridor	drawing the design section the natural land from the corridor		
6		Knowing the Tamblit	Tamblit		
7		Knowledge of tamplet editing	tamplet editing		
8		Knowledge of the final printing	the final printing		
9		Get to know Iaz Parcel and its use In dividing the lands	Get to know Iaz Parcel and its use In dividing the lands		
10		Know the division of space From the ground using Instruct parcel	the division of space From the ground using Instruct parcel		
11		Learn to recognize design inspiration Sewerage networks and others Within the pipe network instruction	design inspiration Sewerage networks and others Within the pipe network instruction		

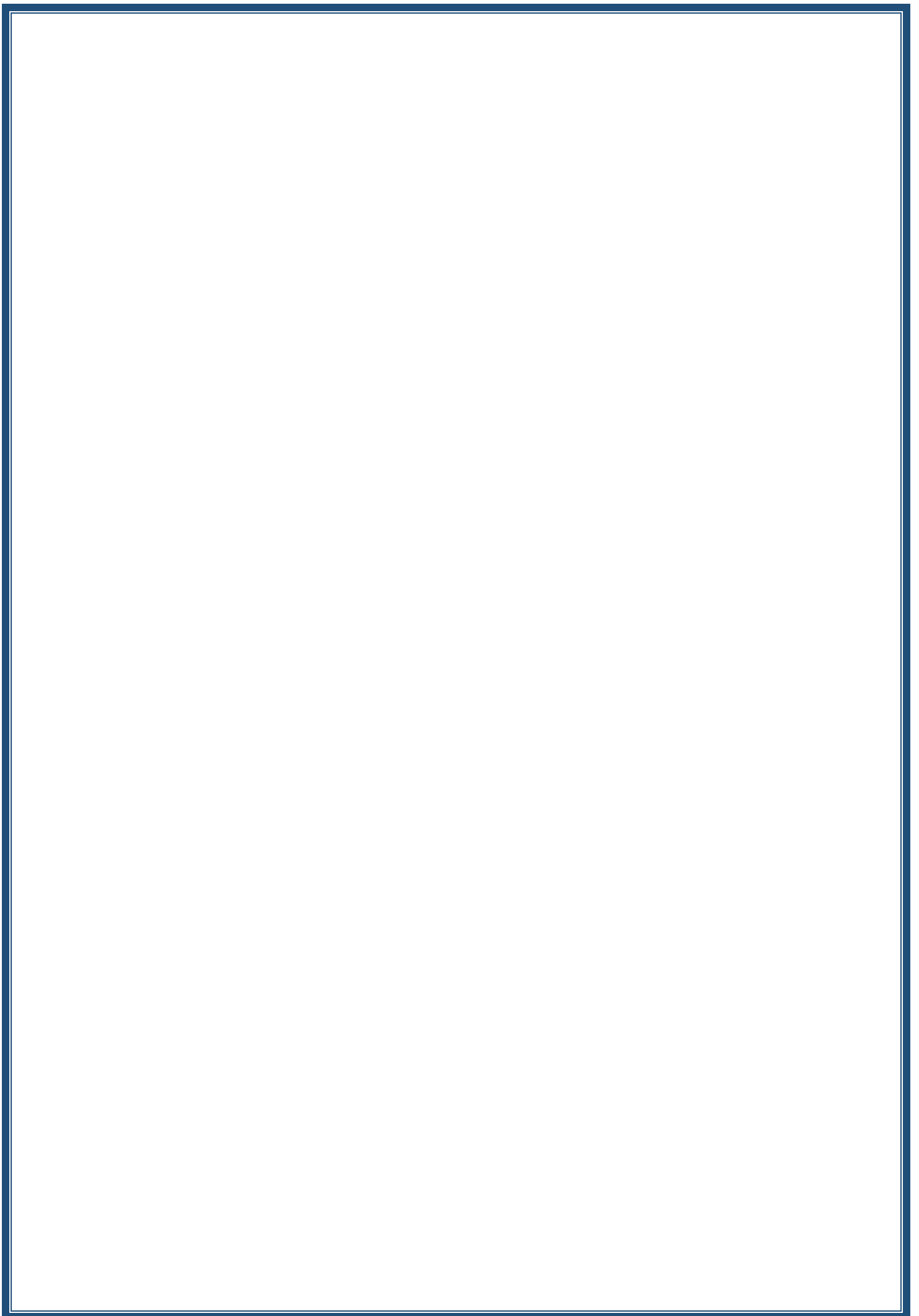
12		Continuation of week eleven	Continuation of week eleven		
13		Continuation of week eleven	Continuation of week eleven		
14		Continuation of week eleven	Continuation of week eleven		
15		Final printing	Final printing		

### 11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc

### 12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	<p>1- Explanation of the Civil 3D program, engineer Khaled Ahmed Abdel Karim</p> <p>2- - Practical reference in AutoCAD Civil 3D 2018 / Engineer Walid Khaled Ali</p>
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	



## Course Description Form

1. Course Name:	
Principles of Remote Sensing	
2. Course Code:	
3. Semester / Year:	
2nd Semester 2023–2024	
4. Description Preparation Date:	
5/2/2024	
5. Available Attendance Forms:	
Blended	
6. Number of Credit Hours (Total) / Number of Units (Total)	
45 Hours (3 hours per week)	
7. Course administrator's name (mention all, if more than one name)	
Name: Asst.Lec. Ali Hussein Alwan	
Email: ali_hussein@mtu.edu.iq	
8. Course Objectives	
Course Objectives	<ul style="list-style-type: none"><li>• Knowledge of the use of the Global Navigation Satellite System and its applications.</li></ul>
9. Teaching and Learning Strategies	
Strategy	<ul style="list-style-type: none"><li>• Use the presentation method.</li><li>• Draw illustrative diagrams.</li><li>• The method of brainstorming.</li></ul>

## 10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	Definition of GPS and GNSS System.	Definition of GPS and GNSS System.	Theory	Monthly and final exams.
2	3	Types of satellite systems.	Types of satellite systems.	Theory	
3	3	GPS system components.	GPS system components.	Theory	
4	3	GPS Navigation Device.	GPS Navigation Device.	Theory	
5	3	GPS working principle.	GPS working principle.	Theory	
6	3	Understand the principles of geodesy (geo, spheroid, coordinate systems).	Understand the principles of geodesy (geo, spheroid, coordinate systems).	Theory	
7	3	Monitoring methods using the GNSS system.	Monitoring methods using the GNSS system.	Theory	
8	3	Leica Viva	Leica Viva	Theory	
9	3	How to do (job) and configure device (GS10, GS15).	How to do (job) and configure device (GS10, GS15).	Theory	
10	3	How to configure (Base GS10) and (Rover GS15) to work in Post Processing method.	How to configure (Base GS10) and (Rover GS15) to work in Post Processing method.	Theory	
11	3	Create ground control points in the field by post-processing method.	Create ground control points in the field by post-processing method.	Theory	
12	3	Configure (Base GS10) and (Rover GS15) to work in the RTK method.	Configure (Base GS10) and (Rover GS15) to work in the RTK method.	Theory	
13-14	3	Configure the Base GS10 and Rover GS15 to work in the RTK method and raise the beams in this way.	Configure the Base GS10 and Rover GS15 to work in the RTK method and raise the beams in this way.	Theory	
15	3	Processing and correction of coordinates.	Processing and correction of coordinates.	Theory	

## 11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports .... etc.

## 12. Learning and Teaching Resources

Required textbooks (curricular books, if any)

Main references (sources)

1. أسس المساحة الجيوديسية والجي بي أس  
د0جمعة محمد داود 2012/ 1433.

2. أساسيات منظومة تحديد الموضع العالمي /وزارة

التعليم

الموصل. مركز التحسس الزاوي/أعداد صباح

مس بن علي

Recommended books and references  
(scientific journals, reports...)

Electronic References, Websites