Description of Academic Program

Al-Kitab University

College of Engineering

Survey Department

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Description of the academic program

Al-Kitab University

College of Engineering

Survey

Department

2023 -2024

Academic Program Description Form

University Name: Al–Kitab University

Faculty/Institute: engineering of survey

Scientific Department: engineering of Survey department

Academic or Professional Program Name: Bachelor of Science in Survey Engineering

Final Certificate Name: Bachelor of Science in Survey Engineering

Academic System: Annual

Description Preparation Date: 11/2/2024

File Completion Date: 11/2/2024

Signature: Adil

Head of Department Name:

Dr. Adil M. Raheem

Date: 3/4/2024

Signature:

Scientific Associate Name:

Dr. Salim Y. Kasim

Date: 3/4/2024

The file is checked by: Dr. Noor Nabeel

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:

Date: Dr. Ali Ismael

Signature:

Approval of the Dean

| *Ach*ieving | |

Achieving leadership and excellence in the field of surveying engineering to provide the community with highly qualified surveyors.

| 2. Program Mission | |

Qualifying graduates of the department and human resources as qualifications in the field of surveying engineering, which contributes to meeting the nation's needs in various engineering projects (surveying and construction) of various sizes for public and private sector departments.

| 3. Program Goals | |

- *Graduating qualified cadres to carry out ground surveying, photogrammetry, and remote sensing techniques, as well as the work of surfacing and leveling surface features of natural land, including artificial ones, using traditional and modern surveying devices, comprehensive station devices, global navigation devices, and cadastral devices (GPS, DGP), and the ability to maintain various surveying devices, in addition to preparing and drawing topographic, cadastral, cadastral, thematic and detailed maps, as well as using geographic information systems (GIS) to build a database and produce digital maps in various fields.*
- *Developing the teaching staff in the department by creating the appropriate atmosphere, urging the department's teachers to engage in scientific research, pay attention to scientific promotion, and complete their studies to obtain higher grades and greater experience.*
- *Striving to develop the scientific skills and capabilities of the department's engineers and technicians and enrolling them in development courses in a way that will reflect positively on their practical performance.*

- *Opening up to society through the public and private sectors, and providing engineering consultations and studies in the department's field of specialization.*

4. Program Accreditation: None	

5. External Influencing factors: None	

The department's curricula according

Course system vocabulary								
Second academic level								
code	Grader, if any	Units	Practical hours	Theory hours	Course Name		Require type	T
					English	Arabic		
LAW01100		2	2	2	Basic ComputerII	Computer basics	University requirements	1
CEN06105	CEN06101	3	----	3	MathematicsII	mathematicsII	College requirements	2
CEN06103		2	2	1	Physics Fundamentals	Principles of engineering physics		
		2	2	1	CAD Engineering Drawing	Engineering drawing using AutoCAD	requirements Section	3
	nothing	2	---	2	Engineering Statistics	Engineering statistics 1		
	nothing	1	---	1	Principles of Civil Engineering	Principles of civil engineering		
	nothing	4	3	3	Applied Surveying Engineering	Applied space engineering		

					Course system vocabulary			
					Third academic level			
code	**Grader, if any**	**Units**	**Practical hours**	**Theoretical hours**	**Course Name**		**Mandatory/ optional**	**Requirement type**
					English	**Arabic**		
		3		3	Elective Course	Optional topic		University requirements
CEN06312		2		3	Engineering Analysis	Engineering analyses	Mandatory	College requirements
	SUR06203	3	3	2	Engineering Surveying Ⅰ	Surveying engineering Ⅰ		requirements Section
	SUR06309	3	3	2	Engineering Surveying Ⅱ	Surveying engineering Ⅱ		
	SUR06208	3	3	2	Astronomy	astronomy		
	SUR06203	3	3	2	Adjustment computation Ⅰ	Quantity calculation Ⅰ		
	SUR06312	3	3	2	Adjustment computation Ⅱ	Quantity calculation Ⅱ	Mandatory	
	SUR06207	3	3	2	Photogrammetry Ⅱ	The photo scan Ⅱ		
	SUR06315	2	3	1	Cadastral Surveying Ⅱ	Cadastral survey Ⅱ		
	SUR06203	2	3	1	Cadastral Surveying	Cadastral survey Ⅰ		
	CEN06105	3	3	2	Map Projection	Drop maps		
	SUR06317	3	3	2	Cartography	Cartography		
		2		2	Elective Course	Optional topic	my choice	

code	Grader, if any	Units	Practical hours	Theoretical hours	Course Name English	Course Name Arabic	Mandatory /optional	Requirement type
							my choice	University requirements
		2		2	Remote sensing		Mandatory	requirements Section
SUR06308		3		3	Transportation			
SUR06208		3	3	2	Geodesy Ⅰ			
SUR06321		3	3	2	Geodesy Ⅱ			
SUR06318		2	3	1	Surveying Maps with CAD			
SUR06321		3		3	Space Geodesy			
SUR06314		3	3	2	Laser and photogrammetry surveying			
SUR06419		3	2	2	GIS Ⅰ			
		2	2	1	Engineering Project Ⅰ			
		2	2	1	Engineering Project Ⅱ			
SUR06426		3	2	2	GIS Ⅱ			
		2		2	Project Management	Project Management		
		3		3	Elective Course	my choice		

Course system vocabulary

Fourth academic level

8. Expected learning outcomes of the program

A- Cognitive objectives

A1- The ability to apply knowledge in mathematics, science, and engineering.

A2- The ability to identify, formulate and solve engineering problems.

A3- The ability to use modern engineering techniques, skills, and tools necessary to practice engineering.

A4- The ability to understand the applied codes of the profession and professional specifications.

B - The program's skill objectives.

B1 - The ability to supervise or implement various civil engineering works.

B2 - The ability to think about solving problems that arise during the implementation of work.

B3 - The ability to write scientific reports and read engineering diagrams.

B4 - The ability to keep pace with developments in engineering materials and implementation methods. Evaluation methods: 1. Short examinations (COZ).2. Homework.3. Semester and final exams for theoretical and practical subjects.4. Small projects within the lesson.5. Interaction within the lecture.6. Reports.

C- Emotional and value goals.

C1- Attention: arouse students' attention through questions during the lecture.

C2- Response: Monitoring the extent of the student's interaction with the material displayed on the screen.

C3- Interest: Following up on the interest of the student who interacted most with the material presented.

C4- Forming the direction: meaning that the student is sympathetic to the presentation and may have an opinion towards the presented topic and defend it.

C5 - Forming valuable behavior: meaning that the student reaches the top of the emotional ladder and has a stable level in the lesson and does not become lazy or fidgety..

9. Teaching and learning strategies

Teaching and learning methods:

• Method of delivering lectures. • E-learning within the campusUniversity.• Scientific trips to follow up on designed projects in civil engineering.• Engineering workshops.• Experimental education.• Applied education(laboratories). Evaluation methods: • Commitment to the deadline for submitting the assignments and research required of the student. • Active participation in the classroom is evidence of the student's commitment and responsibility. • Semester and final tests express commitment and cognitive and skill achievement.

D - General and qualifying transferable skills (other skills related to employability and personal development).

D1- Developing the student's ability to deal with technical means.

D2- Developing the student's ability to deal with the Internet.

D3- Developing the student's ability to deal with multiple media.

D4- Developing the student's ability to dialogue and discuss.

Teaching and learning methods

• A case study (graduation project) in providing a description that includes scientific facts about an engineering problem and asking students to analyze some information, diagnose the problem and describe the mathematical solution. • Stirring the student's motivation toward the answer and toward studying more. • Working within multiple groups in workshops. • Working With other state institutions within the summer training program.• Organizing field visits to the work field.

Education strategiesSome teaching strategies that a faculty member can use to achieve the targeted learning outcomes:

1. <u>Brainstorming strategy</u>The faculty member stimulates the learners' minds with the aim of thinking about all directions and possibilities so that he can reach the largest number of ideas on a specific topic, which is the subject of the lecture. Then the faculty member collects the learners' suggestions and discusses them collectively, taking into account that this is done in an atmosphere of freedom. ...The following goals are achieved by using this strategy:

   *Make the learner involved and active in educational situations

   *Training the student to respect the opinions of others

   *Teach the student to benefit from the opinions and information of his colleagues.

2. <u>Group work strategy "cooperative learning":</u>In it, the faculty member divides the learners into small groups, often made up of (3-4) learners, and gives them specific duties "common goals." They must rely on cooperation (the exchange of knowledge and skills between them) in order to accomplish the duties required of them, and by using the faculty member this strategy, this is achieved. the following:

   * Before the ideas of others

   *Developing a spirit of cooperation and a sense of responsibility

   *Training in problem solving and decision making

   *Encouraging self-learning.

3. Discussion strategy It is one of the ancient teaching strategies that the philosopher (Socrates) used to guide and encourage his students. It is considered an evolution of the "lecturing" method in the form of questions that arouse the students'

motivation. This strategy is based on directing students to express opinions, ask questions, and provide answers, thus paying attention to preparing the lesson in advance. By using this strategy, the faculty member achieves the following:

*Pay attention to advance preparation for the lecture

* Ensuring participation among the largest number of students

* Providing an atmosphere of freedom within the lecture hall, which facilitates the learning process

4. Reciprocal teaching strategy: This strategy relies on mutual dialogue between a faculty member and students or between students with each other. This strategy is frequently used in studying Quranic texts. By using this strategy, the faculty member achieves the following:

*Linking old student information with what is up-to-date

*Training in dialogue etiquette.

*Respecting others and appreciating their experiences.

5. Project strategy The faculty member who uses the project strategy identifies a group of educational projects related to the specialization that the students are studying and presents these topics and the names of the projects to the students until each group of students chooses a specific project. Then the faculty member provides assistance and assistance to the students in the form of books, references, advice, and implementation facilities. Until the end of the project and the achievement of the goal, then comes the evaluation stage carried out by the faculty member to determine the extent of the project's implementation. Using this strategy, the following is achieved:

*Training on the most appropriate choice.

*Find an area of cooperation

*Responsibility training.

6. Problem solving strategy This strategy is used by a faculty member provoking students about a problem related to the course, provided that it is appropriate for their level and that they cannot solve easily without research and effort. This is done according to the following steps:

*Identify and formulate the problem.

*Collect information about the problem and analyze it to identify the causes of the problem.

*Develop a vision for possible solutions to implement.

7. Discovery learning strategy this strategy seeks to place the learner at the heart of the educational process... because it requires the student to organize the information he has stored and synthesize it in a new way. Using this strategy, the following is achieved

*It makes the lecture more enjoyable.

*Encourages the learner to think critically.

It gives the learner the opportunity to deal with new problems.

8. Concept mapping strategy It is a teaching strategy that employs shapes, lines, pictures, arrows, colors, and language (linking words) to represent knowledge and provide information. It can also be used to summarize information. Using this strategy, the following is achieved:

*Finding the relationship between concepts

*Make it easier to remember information

*Simplify and organize information.

9. E-learning strategy This strategy relies on interactive information and communications technology (such as the Internet and television channels) to teach students at any time and in any place. The application of this strategy can be benefited from as follows:

 * Providing the opportunity to learn at any time.

*Acquire more computer skills

10. Peer evaluation strategy When using this strategy, the faculty member introduces the student learners to the mechanism of evaluation and correction of works, then the test papers are presented to them, and each student solves the questions without writing his name on the paper, but writes a code that the faculty member gives him, then the papers are collected after completing the answers, then The papers are redistributed again in a random manner to the students so that each learner has a paper different from his own. After that, the student corrects and evaluates the paper he has and gives his comments on it. Then the faculty member presents the model answer items and gives the students an opportunity to re-correct, and then a group discussion takes place between the learners and the faculty member. Using this strategy, the following is achieved:

*Increasing students' sense of self-confidence.

*Discovery and access to the model answer in an interesting way Training in objective evaluation of the performance of others.

11. Flipped classroom strategy Flipped learning is an educational model that aims to use modern technologies and the Internet in a way that allows the faculty member to prepare the lesson through video clips, audio files, or other media, for students to view at their homes or in any other place using their computers, smart phones, or tablets. Before attending the lesson. While lecture time is allocated for

10. Evaluation methods

discussions, projects and exercises. Video is considered an essential element in this style of education, as the faculty member prepares a video clip lasting between 5 and 10 minutes and shares it with students on a website or social media network. Using this strategy, the following is achieved:

*Optimal use of time during the classroom.

*Providing appropriate support to distressed people

*Facilitating the education process

*Ensures a great deal of interaction between the faculty member and student

- **Follow up and discuss graduation projects**

- **Follow up on students' performance in engineering workshops.**

- **Report on completion of the summer training program.**

- **Preparing class and homework assignments. Preparing reports on practical experiments**

- **Preparing reports on mini-projects and engineering software to propose solutions to specialized problems**

- **Monthly and daily examinations**

- **final exams**

11. The teaching staff				
Faculty members				
Preparing the teaching staff		Specialization		Scientific rank
	lecturer	private	General	
	✔	Water resources engineering	civil engineering	Assistant Professor
	✔	Construction	civil engineering	Teacher
	✔	Surveying engineering	civil engineering	Teacher
	✔	Environment and water resources	civil engineering	Teacher
	✔	Geotechnics	civil engineering	assistant teacher
	✔	Construction	civil engineering	assistant teacher
	✔	Roads and bridges	civil engineering	assistant teacher
✔		Urban planning	Surveying engineering	assistant teacher

The process used to orient new faculty members

Opening a center to qualify and train faculty members in universities. This center is divided into two units:

* A special unit for qualifying members of the body and training them within the specialized academic scientific aspect, so that the teaching staff takes it upon himself to familiarize himself with everything that is advanced and new in the field of his general and precise scientific specialization through delivering lectures, seminars and seminars.

*A second unit specializes in developing faculty members in the educational and psychological aspects through holding seminars, lectures, courses and conferences in aspects of university teaching methods and educational techniques. Other aspects include:

 -Introducing the new faculty member to the development vision to A university and its development programs, and its plan aimed at reaching the ranks of prestigious universities.

- Helping the new faculty member adapt practically and psychologically to his new position, and alleviating anxiety that could hinder his participation in and integration into university work and activities.

- Introducing the new faculty member to the role played by the university and his responsibility towards that.

- Involving the new faculty member in professional development programs at the university; To have an active and influential role in it.

- Providing the opportunity for the new faculty member to build a network of relationships and communicate with his peers in other departments and colleges.

- Educating the new faculty member about his rights and duties.

- Introducing the new faculty member to the scientific research programs at the university to enable him to contribute to the research processes therein.

- Introducing the new faculty member to the services provided by the university to its employees; To be able to benefit from it.

- Introducing the new faculty member to the sources of knowledge and electronic information available at the university, and providing him with the skill of searching the Internet and databases.

- Developing the faculty member's skills in teaching, learning and managing the educational process

1. Study training needs in the field of teaching and learning, and patterns of student assessment

2. Holding training courses for faculty members in the field of teaching and learning strategies

3. Preparing courses and workshops to develop faculty members' skills

Professional development for faculty members

1. Gain the necessary skills to build and develop the course.

2. It provides new teaching methods appropriate for the university stage.

3. Develops knowledge and skills in designing tests.

4. Improves the level of performance in teaching.

5. It helps to evaluate past and current teaching performance in an objective manner.

6. Develops students' assessment skills.

7. Provides key knowledge related to different learning theories.

8. Develops the skill of managing dialogue.

9. Gain skills in ways to motivate students to learn.

10 .It provides the necessary skills to develop different thinking skills for students.

11. Improves the efficiency of methods related to guiding and counseling students.

12. Develops time management skills.

Methods of evaluating the performance of faculty members:

There are common methods used to evaluate the performance of faculty members in universities, such as:

- Evaluating the university professor's performance by college deans, department heads, and co-workers

- Evaluating the university professor's performance for himself by urging the university professor to evaluate himself.

- Evaluating the university professor's performance through the students' evaluation of their professors. Taking the student's opinion in evaluating the teaching performance contributes to identifying the positive and negative aspects of the university professor's performance and gives clear indicators of the extent to which he carries out his educational responsibilities, his cognitive abilities, and the level of his encouragement and scientific support for the students.

Professional development

Orienting new faculty members

Training and development of professors: By providing training programs and workshops for faculty members to develop their educational skills and update their academic knowledge in the field of accounting. Which enhances the quality of teaching and learning in the specialty.

Professional development for faculty members

Professional development for faculty members is considered important to enhance their competence and improve their performance in the field of teaching. Faculty can develop their skills by attending workshops and training courses, and participating in educational seminars and conferences. They can also exchange knowledge and experiences with colleagues in the field, and use technology to improve the teaching process. This helps them innovate and improve the quality of education they provide to students.

12. Acceptance criterion

 The acceptance rate must not be less than (70%). The student who is decided to be accepted into the college submits a written pledge with a certified guarantee to pay the amount determined by the Council in the event of his dismissal from it. His acceptance will be canceled if he does not submit the pledge within (15) days from the date of the announcement of acceptance, unless he presents a legitimate excuse that the Dean is convinced of. Technical institutes, others from the top five percent of professional studies,

13. The most important sources of information about the program
and some distinguished employees from state ministries.

1. Websites of Iraqi and foreign universities
2. Scientific libraries.
3. Workshops held by the Ministry of Higher Education in addition to the Ministry's standards.

14. Program development plan
1. Planning for personal development Student skills Self-learning through the nature of vocabulary, study curricula and approved teaching methods• Encouraging students to work as work teams within practical projects that reflect the life reality of society and its problems. • Encouraging students to enter and participate in competitions, seminars and conferences, which develop and develop their research ability and self-confidence in self-learning.

Curriculum Skills Map

Please tick in the relevant boxes where individual Learning Program Outcomes are being assessed

Program learning outcomes

Year/Level	CourseCode	Course Title	Core(C) Title or Option (O)	Knowledge and understanding				Subject-specific skills				ThinkingSkills				General and Transferable Skills (or) Other skills relevant to employability and personal development			
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	D1	D2	D3	D4
Second	SVE10209	Mathematics II	C	√	√			√	√	√	√			√	√		√	√	
	SVE10210	Programming	C	√	√			√	√	√	√		√	√		√	√		
	SVE01211	English Language	O	√	√			√	√									√	√
	SVE11212	Descriptive Geometry	O	√	√			√	√	√	√		√	√			√	√	

Year	Code	Name	Type	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Second	SVE20213	Surveying II	C	√	√			√	√	√	√			√	√		√	√	
	SVE20214	Engineering Statistics	C	√	√			√	√			√	√					√	√
	SVE22215	Photogrammetry	C	√	√			√	√				√	√			√	√	
	SVE11216	Matrix Algebra	C	√	√			√	√				√	√			√	√	
	SVE22217	Spherical Trigonometry	C	√	√	√	√	√			√	√	√	√			√	√	
	SVE00218	Democracy	O	√	√	√			√	√	√	√				√	√		
	SVE22327	Project Management	C	√	√	√				√	√	√					√	√	
	SVE20220	Cadastral	C	√	√	√					√	√					√	√	
Third	SVE10321	Engineering Analysis	C	√	√			√	√		√	√	√	√			√	√	
	SVE20322	Engineering Surveying	C	√	√			√	√		√	√			√	√			
	SVE11323	Technical Reports	C	√	√			√	√	√	√	√	√			√	√		
	SVE21324	Carto I	C	√	√		√	√	√	√	√			√	√			√	
	SVE20325	Adjustment Computations	C	√	√		√	√	√	√	√		√	√	√	√			
	SVE20326	Practical Astronomy	O	√	√		√	√	√	√	√		√	√	√	√	√		
	SVE22327	Project Management	C	√	√		√	√	√	√		√	√	√	√				
	SVE20328	Photogrammetry	C	√	√		√	√		√	√	√	√	√	√	√	√		
	SVE22329	Remote Sensing	C	√	√	√	√	√	√		√	√	√	√	√	√	√	√	
Fourth	SVE20430	Transportation Engineering	C	√	√	√	√	√	√		√	√	√	√	√	√	√	√	
	SVE20431	GIS	C	√	√	√	√	√	√		√	√	√	√	√	√	√	√	
	SVE21432	Survey Cad	C	√	√	√	√	√	√					√	√	√	√		
	SVE20433	Geodesy	C	√	√		√	√	√	√	√	√	√	√	√	√	√		
	SVE20434	Analytical Photogrammetry	C	√	√		√	√	√	√	√	√	√	√	√	√	√	√	√
	SVE20435	Engineering project	C	√	√	√	√	√	√	√	√	√	√	√	√	√			
	SVE20436	Map Projections	C	√	√	√	√	√	√	√	√	√			√	√	√	√	√
	SVE12437	Numerical Methods	C	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	
	SVE20438	Surveying with Satellite	C	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	

Course Description Form

1. Course Name: **Engineering Mathematics**	
2. Course Code:	
3. Semester / Year:2023-2024	
4. Description Preparation Date:17/2/2024	
5. Available Attendance Forms: 17/2/2024	

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

120/6

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

Name: assit.Prof.Dr.Abdulwahab Mohammad Younis Email: abdulwahab.younis@uoalkitab.edu.iq

8. Course Objectives

Course Objectives	Identifying many advanced mathematical topics and their applications in various engineering fields, especially in the field of petroleum engineering and its applications, thus providing the student with the skill of mastering and implementing the equations and theories he has learned in his field of Specialization.

9. Teaching and Learning Strategies

Strategy	Urging students to read the latest modern editions of analytics books engineering and its applications, as well as encouraging students to solve more applied questions In the field of specialization, knowledge, and learning, modern programs that address

This scientific aspect develops the student's ideas and expands his scientific background in his field of specialization

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	The student must acquire full knowledge and theoretical and practical experience in the field of petroleum engineering	Introduction	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class.
2	4	The student must acquire full knowledge and theoretical and practical experience in the field of petroleum engineering	Solution of first order diff. equations.	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.
3	4	The student must acquire full knowledge and theoretical and practical experience in the field of petroleum engineering	Application of first order diff. equations'	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework
4	4	The student must acquire full knowledge and theoretical and practical experience in the field of petroleum engineering	Application of first order diff. equations.	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.
5	4	The student must acquire full knowledge and theoretical and practical experience in the field of petroleum engineering	Solution of 2nd order homogeneous ordinary diff. equations.	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework
6	4	The student must acquire full knowledge and theoretical and practical experience in the field of petroleum engineering	Solution of 2nd order non homogeneous ordinary diff. equations.	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.
7	4	The student must acquire full knowledge and theoretical and practical experience in the field of petroleum engineering	Solution of higher order ordinary diff. equations	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework
8	4	The student must acquire full knowledge and theoretical and practical experience in the field of petroleum engineering	Euler's or Cauchy's Equation	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.
9	4	The student must acquire full knowledge and theoretical and practical experience in the field of petroleum engineering	Application of 2nd order ordinary diff. equations.	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework

10	4	The student must acquire full knowledge and theoretical and practical experience in the field of petroleum engineering	Application of 2nd order ordinary diff. equations.	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.
11	4	The student must acquire full knowledge and theoretical and practical experience in the field of petroleum engineering	Application of 2nd order ordinary diff. equations.	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework
12	4	The student must acquire full knowledge and theoretical and practical experience in the field of petroleum engineering	Solution of simultaneous diff. equations.	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.
13	4	The student must acquire full knowledge and theoretical and practical experience in the field of petroleum engineering	Solution of D.E. by Laplace transformation	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework
14	4	The student must acquire full knowledge and theoretical and practical experience in the field of petroleum engineering	Solution of D.E. by Laplace transformation	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.
15	4	The student must acquire full knowledge and theoretical and practical experience in the field of petroleum engineering	Bessel's Functions	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class.
16	4	The student must acquire full knowledge and theoretical and practical experience in the field of petroleum engineering	Bessel's Functions	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.
17	4	The student must acquire full knowledge and theoretical and practical experience in the field of petroleum engineering	Fourier Series	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework
18	4	The student must acquire full knowledge and theoretical and practical experience in the field of petroleum engineering	Fourier Series	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes. 5
19	4	The student must acquire full knowledge and theoretical and practical experience in the field of petroleum engineering	Derivation of wave equation	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework
20	4	The student must acquire full knowledge and theoretical and practical experience in the field of petroleum engineering	Partial diff. equations	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.
21	4	The student must acquire full knowledge and theoretical and practical experience in the field of petroleum engineering	Partial diff. equations	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework
22	4	The student must acquire full knowledge and theoretical and practical experience in the field of petroleum engineering	Solution of wave equation	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.
23	4	The student must acquire full knowledge and theoretical and practical	Applications of wave	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class.

		experience in the field of petroleum engineering	equation		- Homework
24	4	The student must acquire full knowledge and theoretical and practical experience in the field of petroleum engineering	`Applications of wave equation	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.
25	4	The student must acquire full knowledge and theoretical and practical experience in the field of petroleum engineering	Applications of wave equation	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework
26	4	The student must acquire full knowledge and theoretical and practical experience in the field of petroleum engineering	Numerical Methods and Taylor Series	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.
27	4	The student must acquire full knowledge and theoretical and practical experience in the field of petroleum engineering	Numerical Methods and Taylor Series	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework
28	4	The student must acquire full knowledge and theoretical and practical experience in the field of petroleum engineering	Numerical Methods and Taylor Series	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.
29	4	The student must acquire full knowledge and theoretical and practical experience in the field of petroleum engineering	Numerical Methods and Taylor Series	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class.
30	4	The student must acquire full knowledge and theoretical and practical experience in the field of petroleum engineering	Numerical Methods and Taylor Series	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class.

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

Annual pursuit = 40% distributed between Homework + daily and monthly exams + mid-year exam

Final exam = 60%

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	**Kreyszig, E.'' Advanced Engineering mathematics''**
Main references (sources)	Theory and Problems of Differential Equations,By Frank Ayres,JR,PhD

Recommended books and references (scientific journals, reports...)	Advanced Engineering Mathematics By Dass
Electronic References, Websites	

Course description form

Course name: Cadastral   .1
Course code: **SVE00218**   .2
Semester/Year: Annual   .3 Annually
Date this description was prepared: January 2024   .4
Available attendance forms: Attendance   .5
Number of units (total): 2   .6
Name of the course administrator (if more than one name is mentioned)   .7

Name: Farhan Khorsheed	

Course objectives .8	
Objectives of the study subject	To stand scholars and researchers on Islam superior care and sponsorship distinct and unique human rights, which include all aspects of his life and all stages of life. 2 - refute the claim of the Western world, which claims that they sponsor human rights, and supporting them, and defending them and claim that human rights did not know her, but since the French Revolution in 1798, the Universal Declaration of Human Rights of all for the UN in 1948 3 - to prove that the human rights and the duties it from a humanitarian necessity, and human encroachment, and the imposition of religious 4 - to prove that the human rights, and duties may be prescribed by God Almighty since the creation of Adam, peace be upon him and not as claimed by the West during the concepts of European civilization, and culture, and regulations 5 - rooting the rights of God, and the rights of the subjects that characterized Islam, pushing the nation to the correct understanding and application of good because of their rights and her duties 6 - The objective of this study was not to stay the students, and intellectuals, and intellectuals untouched, and isolation from the human rights issues in the world and should intubation each contravention of faith and morals, and threatens their cultural identity • 7 - evidenced by this decision universality of rights in Islam it is not interested in one side of human life, as do Western civilization but also include the law of Islam, and was organized by the culture of human rights in all stages of his life, and all aspects of his life, and after his death, but beyond these rights of human beings to include the world animal, plant

Teaching and learning strategies 9. .9	
The strategy	the offer .1 Coordination .2 Training .3 Discussion .4

Course structure10. .1		
Topic	Hours	Week

Topic	Hours	Week
the concept of democracy	2	1
the historical development of democracy	2	2
democracy in ancient civilizations	2	3
Democracy in Islam	2	4
democracy in the Middle Ages	2	5
democracy in the twentieth century	2	6
types of democracy	2	7
types of democracy	2	8
election	2	9
the concept of democracy	2	10
Terms of election	2	11
Terms of election	2	12
Methods of election	2	13
The concept of human rights	2	14
Human Rights in Islam	2	15
the international covenants on human rights	2	16
International Law of Human Rights	2	17
protection of human rights	2	18
The difference between international humanitarian law and international law, human rights	2	19
protection of human rights	2	20
The difference between international humanitarian law and international law, human rights	2	21
protection of human rights	2	22
protection of human rights	2	23
The difference between international humanitarian law and international law, human rights	2	24
protection of human rights	2	25
The difference between international humanitarian law and international law, human rights		26
protection of human rights		27
The difference between international humanitarian law and international law, human rights		28

	Learning and teaching resources 11. .2
	Required textbooks (methodology, if any)

Cadastre: Geo-Information Innovations in Land Administration | SpringerLink	Main references (sources) 1- رياض عزيز هادي، الديمقراطية دراسة في تطورها، مفاهيمها، ابعادها، كلية العلوم السياسية، جامعة بغداد، بغداد، 2010. 2- صالح جواد كاظم، علي غالب العاني، الانظمة السياسية، جامعة بغداد، كلية القانون، بغداد، ط2، 2007. 3- ماهر صبري كاظم، حقوق الانسان والديمقراطية، والحريات العامة، بغداد، 2010. 4- هاشم مرتضى، الديمقراطية، وجهات نظر اسلامية، بغداد 2008. صادق مكي، حرية الانسان بين الواقع والشريعة، بيروت،19
	Recommended supporting books and references (scientific journals, reports....
	Electronic references, Internet sites

Course description form

Course name .10	
Introduction to Photogrammetry	
Course code: .11	
SVE22215	
Semester/Year: Annual .12	
Annual	
Date this description was prepared: .13	
January 2024	
Available attendance forms: .14	
Attendance	
Number of units (total): .15	
3	
Name of the course administrator (if more than one name is mentioned) .16	
Name: Dr. Hayder Mahmood	

Course objectives .17

Photogrammetry surveys gather measurements and data about an object by analyzing the change in position from two different images, using things like perspective, advanced processing software and photo analysis to get the job done. It can happen on the ground or from the air.

In the field of architecture and construction, photogrammetry is used for the reconstruction and restoration of buildings, as well as for visualization purposes. It is also used in the design of large and medium engineering projects, such as highways and dams, where it provides the necessary geodetic information

Teaching and learning strategies .18

	The strategy
the offer .5 Coordination .6 Training .7 Discussion .8	

Course structure 10. .9

Topic	Hour	Week
Introduction	2	1
OVERVIEW: Photo geometry and fundamental of photogrammetric measurements	10	5
STEREOSCOPIC VIEWING: Depth conception, stereoscope, y-parallax, vertical exaggeration, stereoscopic parallax, floating mark, parralax equation	10	5
STEREOSCOPIC PLOTTING INSTRUMENTS (analouge and analytical): Inner, relative and absolute orientation	8	4
Coordinate transformation	10	5
PHOTO RESECTION AND INTERSECTION [analytical] – resection and intersection (sigle photo), relative and absolute orientation (stereo)		
PLANIMETRIC MAPPING: Rectification, Georeferencing, Mosaic	10	5
GEOMETRY OF AERIAL STEREO-PAIR: Analytical solution (collinearity & coplanarity)	4	2
AEROTRIANGULATION: Aerotriangulation and block adjustment	8	3

Learning and teaching resources .1

	Required textbooks (methodology, if any)
Introduction to Modern Photogrammetry - Page v books.google.iq › books Edward M. Mikhail, James S. Bethel, J. Chris McGlone · 2001	Main references (sources)
Aerial Photography and Image Interpretation	Recommended supporting books and references (scientific journals, reports....)

David P. Paine, James D. Kiser · 2012	
	Electronic references, Internet sites

1. Course Name:	
Mathematics II	
2. Course Code:	
SVE22217	
3. Semester / Year:	
4. Description Preparation Date: March 2020	
5. Available Attendance Forms:	
6. Number of Credit Hours (Total) / Number of Units (Total)	
7. Course administrator's name (mention all, if more than one name)	
Name: Sami Hameed	Email: kolsan.akram@uoalkitab.edu.iq
8. Course Objectives	
Course Objectiducing basic concepts and techniques in calculus and differential equations. Develop a solid foundation for motion along continuums, Taylor-Maclaurin series, functions of several variations, extrema, Lagrange multipliers, multiple integrals, order changes, first-order differential equations, and second-order differential equations.	
9. Teaching and Learning Strategies	
t - Lectures: Instructors may deliver lectures to introduce new concepts, explain theory, and provide examples. They may use visual aids, such as slides or whiteboards, to enhance understanding. - Active Learning: Engaging students in active learning strategies can promote understanding and retention. This may include problem-solving activities, group discussions, peer teaching, or hands-on experiments. - Problem-Solving Sessions: Dedicated problem-solving sessions can help students apply calculus concepts to practice. Instructors can guide students through example problems, challenging exercises, and step-by-step problem-solving techniques. - Practice Exercises: Assigning practice exercises allows students to reinforce their understanding of calculus concepts and develop problem-solving skills. Instructors may provide a set of exercises for individual or group work. - Real-World Applications: Demonstrating real-world applications of calculus can help students understand the relevance and practicality of the subject. Instructors may use examples from physics, engineering, economics, or other fields to illustrate how calculus is applied. - Technology Integration: Utilizing technology tools, such as graphing calculators, computer software, or online resources, can aid	

visualization, experimentation, and problem-solving. Instructors may incorporate these tools into lectures, assignments, or hands-on activities.
- Formative Assessment: Regular formative assessments, such as quizzes or short assignments, can help monitor students' progress and identify areas that need further clarification or review.
- Feedback and Discussion: Providing timely and constructive feedback on students' work is crucial for their learning. Instructors may offer individual feedback on assignments, encourage class discussions to address misconceptions, or provide opportunities for students to ask questions.
- .Independent Study: Encouraging students to engage in independent study allows them to explore additional resources, deepen their understanding, and develop self-directed learning skills. Instructors may recommend textbooks, online tutorials, or supplementary readings.
0- Review Sessions: Before exams or assessments, review sessions can help consolidate knowledge and address any remaining questions or challenges. Instructors may recap key concepts, solve practice problems, or provide study guides.
1- Collaborative Learning: Promoting collaborative learning activities, such as group projects or study groups, can enhance students' understanding through peer interaction, collective problem-solving, and knowledge sharing.
2- Reflection and Metacognition: Encouraging students to reflect on their learning process and develop metacognitive skills can enhance their understanding and problem-solving abilities. Instructors may prompt self-reflection through questions or discussions about learning strategies, mistakes, or approaches to problem-solving.

10.. *Teaching and Learning Methods*

A-Knowledge and Understanding
1. Locate position
2. Compute the distance
3. Compute direction
4. Short distance
5. Navigation

B- Discussion ,explain and example

12. *Assessment Methods*

Exam, homework , class work

11.Weekly planner	
Topic	W
Introduction to spherical Trigonometry, definitions	1
Spherical Excess, derived laws	2
Spherical Triangles and great circles	3
Trigonometric laws for solving Spherical Triangles	4
Right angled angle and Napier's rule	5
Earth as a sphere, paralles and meridians	6
Compute the distances along paralles and meridians.	7
Area of sector bounded by two parallels and two meridians.	8
Inclined angles, horizontal and vertical angles	9
Convergence of meridians	10
Coordinate systems: Geographic, Cartesian, and polar	11
Coordinate systems: rectangular and cartographic systems , transformations	12
Forward and Inverse Computations on spherical triangles	13
Intersection on sphere	14
Rotation of coordinates	15
Exam	16

Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	- Spherical Triangles -Shepherd F.A. (1982) "Advanced Engineering Surveying: problems and solution"1 st edition, Hodder Amold
Special requirements (include for example workshops, periodicals, IT software, websites)	
Community-based facilities (include for example, guest Lectures , internship , field studies)	

Course description form

Course name: Cadastral .19
Course code: SVE20222 .1
Semester/Year: Annual .1
Date this description was prepared: January 2024 .1
Available attendance forms: Attendance .1
Number of units (total): 3 .1
Name of the course administrator (if more than one name is .1 mentioned)

Name: M.M. Sadan Azmi, email: sadan.azmi@uoalkitab.edu.iq

Course objectives .1

	Objectives of the study subject
• Ability to identify, formulate, and solve complex engineering problems by applying engineering, science, and mathematics principles • Ability to apply engineering design to produce solutions that meet specific needs • Ability to develop and conduct appropriate experiments, analyze and interpret data, and use engineering judgment to draw conclusions • Acquire and apply new knowledge as needed, using appropriate learning strategies.	

Teaching and learning strategies .1

	The strategy
the offer .10 Coordination .11 Training .12 Discussion .13	

Course structure .3

Topic	Hours	Week

Week

Topic	Hours	Week
Angle and direction computations 1	4	
Forward and backward comp.	4	2

Invers commutations	4	3
Coordinates	4	4
Coordinates	4	5
Balancing of travers by least square method	4	6
Balancing of travers by least square method	4	7
Balancing of travers by least square method	4	8
Balancing of travers by least square method	4	9
Monthly Exam	4	10
Mid-year rest	4	11
Mid-year rest	4	12
Intersection problems	4	13
Intersection of two straight lines	4	14
Intersection of two straight lines with a circle	4	15
Intersection of two circles	4	16
Missing elements in a closed traverse	4	17
Missing elements in a closed traverse	4	18
Missing elements in a closed traverse	4	19
Monthly exam2	4	20
Computation area by coordinates	4	21
Computation area by coordinates	4	22
Parting off lands	4	23
Parting off lands	4	24
Parting off lands	4	25
Cadastral design	4	26
Cadastral design	4	27
Cadastral design	4	28
Atmospheric model	4	29
Computing fractions of lots	4	30

Learning and teaching resources .2

	Required textbooks (methodology, if any)

Cadastre: Geo-Information Innovations in Land Administration	SpringerLink	Main references (sources)
	Recommended supporting books and references (scientific journals, reports....)
	Electronic references, Internet sites

Course description form

Course name .1	
Matrices	
Course code .2	
: **SVE11216**	
Semester/Year: Annual .3	
semester	
Date this description was prepared .4	
January 2024	
Available attendance forms .5	
Attendance	
Number of units (total): .6	
3	
Name of the course administrator (if more than one name is .7 mentioned)	

8. Name: M.M. Sadan Azmi, email: sadan.azmi@uoalkitab.edu.iq	

9. Course objectives

● Recognize, describe, and calculate the measures of location of data: quartiles and percentiles. Recognize, describe, and calculate the measures of the center of data: mean, median, and mode. Recognize, describe, and calculate the measures of the spread of data: variance, standard deviation, and range.

10. Objectives of the study subject	The course aims to prepare students to be familiar with the details needed in the subsequent stages in many applications in the specialty classes and so it be as sports, in addition to solving many engineering problems.

1. Teaching and learning strategies

1. Lectures.
2. Tutorials.
3. Homework and Assignments.
4. Tests and Exams.
5. In-Class Questions and Discussions.
6. Connection between Theory and Application.

1. The strategy	1. Coordination 2. Training 3. Discussion	

1. Course structure

topic	Hour	week
Introduction, definitions, Matrices, Equal Matrices.	2	1
Production of Matrices, some types of matrices.	2	2
Determinant of matrices, determined of orders (2*2) and (3*3).	2	3

Minors and Cofactors, determinant of matrix by Chio's method.	2	4
The Inverse of a matrix, Inverse from the adjoint .	2	5
Inverse of matrix by partitioning, solved problems.	2	6
Inverse of matrix by Reduction, solved problems	2	7
Solution of simultaneous linear Equations by matrices: Cramer's method, Inverse method.	2	8
Solution of simultaneous linear Equations by matrices: Gauss elimination, and Cholesky method.	2	9
Characteristic Values and Characteristic vectors: Eigen values and Eigen vectors.	2	10
Eigen values and Eigen vectors by long deviation.	2	11
Conic sections by matrices.	2	12
Applications of conic sections by matrices	2	13
Orthogonal matrix, Idempotent matrix, Caily Hamilton method	2	14
Examination		15

Learning and teaching resources	
Introduction to Engineering Statistics and Lean Six Sigma Statistical Quality Control and Design of Experiments and Systems By Theodore T. Allen · 201	Main references (sources) 1.

Description Form

10. Course Name: Engineering Statistcs	
11. Course Code: Ens12317	
12. Semester / Year: 2023-2024	
13. Description Preparation Date:	
14. Available Attendance Forms: Electronic & papers	
15. Number of Credit Hours (Total) / Number of Units (Total)	
16. Course administrator's name (mention all, if more than one name)	

Name: Dr. Saad Namique
Email: saadnamiq@uoalkitab.edu.iq

17. Course Objectives	

Course Objectives	To develop problem solving skills and understanding of circuit theory through the application of techniques.
	• To understand voltage, current and power from a given circuit.
	• This course deals with the basic concept of electrical circuits.
	      • This is the basic subject for all electrical and electronic circuits.
	      • To understand Kirchhoff's current and voltage Laws problems.
	      • To perform mesh and Nodal analysis.

18. Teaching and Learning Strategies	
Strategy	TYPE SOMETHING LIKE: THE MAIN STRATEGY THAT WILL BE ADOPTED IN DELIVERING THIS MODULE IS TO ENCOURAGE STUDENTS' PARTICIPATION IN THE EXERCISES, WHILE AT THE SAME TIME REFINING AND EXPANDING THEIR CRITICAL THINKING SKILLS. THIS WILL BE ACHIEVED THROUGH

		CLASSES, INTERACTIVE TUTORIALS AND BY CONSIDERING TYPES OF SIMPLE EXPERIMENTS INVOLVING SOME SAMPLING ACTIVITIES THAT ARE INTERESTING TO THE STUDENTS.

19. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
Week 1

Week 2

Week3

Week4

Week 5

Week5

Week6

Week8

Week9

Week10

Week 11

Week12

Week13

Week14 | 4 | 1. IMPORTANCE OF STATISTICS.
2. DESCRIPTIVE AND INFERENTIAL STATISTICS.
3. PICTORIAL DESCRIPTION OF DATA.
4. RANDOM SAMPLE SELECTION.
5. DATA CLASSIFICATIONS.
6. FREQUENCY DISTRIBUTIONS.
7. GRAPGICAL REPRESENTATION OF DATA HISTOGRAMS.
8. FREQUENCY POLYGON.
9. MESURES OF PROBABILITY VARIATION AND THE BINOMIAL DISTRIBUTIONS.
10. POISSON DISTRIBUTION.
11. NORMAL DISTRIBUTION . | | | |

Week 15		12. CORRELATION AND REGRESSION ANALYSIS.			
Week16					

Course Description Form

Course Name:
Computer Programming II

Course Code:
SVE10210

Semester / Year:
Annual

Description Preparation Date:
19/3/2024

Available Attendance Forms:
Class attendance

Number of Credit Hours (Total) / Number of Units (Total)
60 hours / 4 units

Course administrator's name (mention all, if more than one name)
Name:Ahmed Jasim Kasim Email: ahmedjasim@uoalkitab.edu.iq

Course Objectives	
Course Objectives	**Expand students' programming knowledge by exploring advanced programming concepts and techniques.** • **Familiarize students with the MATLAB programming language and its applications in data analysis and algorithm development** • **Develop skills in problem-solving, algorithmic thinking, and code optimization.**

Teaching and Learning Strategies	
Strategy	Students will learn advanced programming techniques, numerical computing, data analysis, and visualization using MATLAB. Topics covered include matrices and array operations, control flow, function writing,

Course Structure					
Week	**Hours**	**Required Learning Outcomes**	**Unit or subject name**	**Learning method**	**Evaluation method**
1	2	Learn about the concept of the program and its working environment	INTRODUCTION TO MATLAB AND ITS ENVIRONMENT	Theoretical and practical application	Daily and monthly theoretical testing practically
2	2	MATLAB SYNTAX AND BASIC PROGRAMMING CONCEPTS REVIEW			
3,4		M Matrices and array operations	Learn about the main tools and how to apply them		
5		**FUNCTION WRITING AND MODULAR PROGRAMMING**			
6,7					
9,10		**FILE INPUT/OUTPUT OPERATIONS**			
11					
12		**PLOTTING AND VISUALIZATION**			
13					
14		**NUMERICAL COMPUTING AND SOLVING MATHEMATICAL**			

15,16		**PROBLEMS**			
17		**Data analysis and manipulation using MATLAB**			
		INTRODUCTION TO MATLAB'S TOOLBOXES AND APPLICATIONS			
		BUILT-IN FUNCTIONS			
		Linear algebra : linear combinations			
		LINEAR ALGEBRA: EIGENVALUES			

Course Evaluation

Grade distribution:

10 mark(5 marks for each semester quiz)

15 mark(first term exam)

15 mark(second term exam)

60 mark(10 class activities+35 theory final+15 practical final)

Learning and Teaching Resources

Required textbooks (curricular books, if any)	

Main references (sources)	1 - MATLAB Programming for Engineers 5th Edition: Stephen J. Chapman 2 - Essential MATLAB for Engineers and Scientists: Seventh & Fifth Edition: Brian D. Hahn Daniel T. Valentine
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form	
1. Course Name:	
Adjustment Computation	
2. Course Code:	
SVE20325	
3. Semester / Year:	
Annual	
4. Description Preparation Date:	
17/2/2024	
5. Available Attendance Forms:	
17/2/2024	
6. Number of Hours week	
2	
7. Course administrator's name (mention all, if more than one name)	
Name: Sami Hameed	
8. Course Objectives	
	student should deliver a complete knowledge and practical experience of The applying lea squares adjustment solution to solve surveying problems and have a principal knowledge about lea squares adjustment
9. Teaching and Learning Strategies	
Strategy	This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programmer specification

10 .Course Structure					
	Assessment Method	Teaching method	Topic	Hours	Week
	- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	مقدمة احصائية + تعريف المصطلحات و المصادر	2	1
	- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	انواع الاخطاء (الدقة + الاتقان +الخطاء النسبي)	2	2
	- Regular Attendance - Skills in class. - Homework	Copy lecture, Data show, and board usage	مقايس الدقة + الاحتمالية الاحصائية	2	3
	- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	رسم منحني التوزيع الطبيعي و الاخطاء الاحتمالية	2	4
	- Regular Attendance - Skills in class. - Homework	Copy lecture, Data show, and board usage	الاشتقاق الرياضي الاقل المربعات + الارصادات الموزونة	2	5

	- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	مقدمة عن انتشار الاحطاء العشوائية	2	6
	- Regular Attendance - Skills in class. - Homework	Copy lecture, Data show, and board usage	استخدام المصفوفات في حساب انتشار الاخطاء العشوائية	2	7
	- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	دقة الاجهزة في قياس المسافات الاكترونية	2	8
	- Regular Attendance - Skills in class. - Homework	Copy lecture, Data show, and board usage	التحليل المسبق للبيانات	2	9
	- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	اسلوب التصحيح باقل المربعات	2	10
	- Regular Attendance - Skills in class. - Homework	Copy lecture, Data show, and board usage	اشتقاق المعادلات الارصادية وتطبيقاتها	2	11

- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	اشتقاق المعادلات الشرطية وتطبيقاتها	2	12
- Regular Attendance - Skills in class. - Homework	Copy lecture, Data show, and board usage	حساب دقة البيانات بعد تاتصحيح ومقارنتها بين طرق التصحيح	2	13
- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	امتحان الفصل الاول	2	14
- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	مقدمة عن مصفوفة التباين والتغاير وتطبيقاتها	2	15
- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	منحني القطع الناقص للخطاء+ والنسبي	2	16
- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	عطلة نصف السنة	2	17

- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	معاير الدقة في اعمال المسح	2	18
- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	تطبيقات التصحيح بالمعادلات الشرطية	2	19
- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	مقدمة عن تصحيح شبكات التسوية بالمعادلات الشرطية	2	20
- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	تصحيح بشبكات التضليع بالمعادلات الشرطية	2	21
- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	تطبيقات في تصحيح شبكات التثليث الزاوي	2	22
- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	استخدام الاتجاهات بدلا من الزوايا	2	23

	- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	تصحيح شبكات التثليث بالاطوال	2	24
	- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	امتحان الفصل الثاني	2	25
	- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	شبكات التسوية وتطبيقاتها الحقلية	2	26
	- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	شبكات التضليع بطريقة المعادلات الرصدية	2	27
	- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	التصحيح بطريقة تباين الاحداثيات	2	28
	- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	التقاط الامامي بالاطوال و التقاطع العكسي	2	29

	Exam	30	

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, report

Annual pursuit = 40% distributed between Homework + daily and monthly exams + mid-year exam. Final exam = 60%

12.Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Adjustment Computations: Statistics and Least Squares Paul R. Wolf, Ph.D., Charles D. Ghilani · 1997

Course Description Form

1. Course Name:
Astronomy

2. Course Code:
SVE20326

3. Semester / Year:
Annual

4. Description Preparation Date:
17/2/2024

5. Available Attendance Forms:
17/2/2024

6. Number of Hours week
4hr/week

7. Course administrator's name (mention all, if more than one name)
Name: Sami Hamed Email: sami.hamid@uoalkitab.edu.iq

8. Course Objectives
The Practical Astronomy course aims to introduce the history of astronomy in engineering measurements, define the motion of heavenly bodies, and time system. The main purpose of this course is how to fix the terrestrial position based on the astronomical observations using different astronomical coordinate systems

9. Teaching and Learning Strategies

Strategy	Frame the Lesson. Work the Power Zone. Frequent, Small Group, Purposeful Talk about the learning. Recognize and Reinforce. Write Critically.

10.Course structure				
Assessment Method	Teaching Method	Topic Title	Hours	week
		Introduction and definitions -1	4	1
- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	Introduction and definitions -2	4	2
- Regular Attendance - Skills in class. - Homework	Copy lecture, Data show, and board usage	History of astronomy -1	4	3
- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	History of astronomy -2	4	4
- Regular Attendance - Skills in class. - Homework	Copy lecture, Data show, and board usage	Spherical trigonometry -1	4	5
- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	Spherical trigonometry -2	4	6
- Regular Attendance - Skills in class. - Homework	Copy lecture, Data show, and board usage	Spherical trigonometry -3	4	7
- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	Heavenly bodies	4	8
- Regular Attendance - Skills in class. - Homework	Copy lecture, Data show, and board usage	The earth as a heavenly body -1	4	9
- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	The earth as a heavenly body -2	4	10
- Regular Attendance - Skills in class. - Homework	Copy lecture, Data show, and board usage	Aberration of star light	4	11
- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	Proper motion	4	12
- Regular Attendance - Skills in class. - Homework	Copy lecture, Data show, and board usage	Magnitude and brightness	4	13
- Regular Attendance - Skills in class. - Homework	Copy lecture, Data show, and board usage	Astronomical coordinates	4	14

- Quizzes.				
- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	First semester exam	4	15
- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	Systems of coordinates [Horizon system]	4	16
- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	System of coordinates [Equatorial-hour angle system]	4	17
- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	System of coordinates [Galactic system]	4	18
- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	The astronomical triangle -1	4	19
- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	The astronomical triangle -2	4	20
- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	Solution of the astronomical triangle	4	21
- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	Time Introduction and definitions -1	4	22
- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	Time Introduction and definitions -2	4	23
- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	The time [Sidereal time, Equation of time] -1	4	24
- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	The time [Sidereal time, Equation of time] -2	4	25
- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	The time [The relation between sidereal and solar time] -1	4	26
- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	The time [The relation between sidereal and solar time] -2	4	27

- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	The time [The relation between sidereal and solar time] -3	4	28
- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	The time [equation of time]	4	29
		exam		30

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, report Annual pursuit = 40% distributed between Homework, daily and monthly + mid-year exam +10% lab or practical exams. Final exam = 50%	
12.Learning and Teaching Resources	
Required textbooks (curricular books, if any)	
Main references (sources)	The Practical Astronomer
Recommended books and references (scientific journals, reports...)	A Manual Of Spherical And Practical Astronomy: Embracing The General Problems Of Spherical Astronomy, Volume 1: Chauvenet, William
Electronic References, Websites	

Course Description Form

1. Course Name:
Carto I
2. Course Code:
SVE21324
3. Semester / Year:
Semester
4. Description Preparation Date:
17/2/2024
5. Available Attendance Forms:
17/2/2024
6. Number of Hours week
2
7. Course administrator's name (mention all, if more than one name)
Name: Ahmed Kassim

8. Course Objectives	
	Carto is a cloud-based platform that allows you to create, publish, and share interactive web maps with your data. You can use Carto to visualize spatial patterns, analyze spatial relationships, and communicate your insights with your audience
9. Teaching and Learning Strategies	

Strategy	1- Using phone calls and educational software: Emergency calls can be used via the Internet or educational programs that help you learn and understand reading concepts in an easy and simplified way. 2- You can easily use pictures to illustrate different landmarks and locations. 3- Direct orientation towards the employee's experience: Direct orientation can be learned directly by explaining indoctrination and explaining geography concepts. 4- Highly recommend educational travel: Guests can visit to visit various sites and comprehensive educational travel on favorite sites and places, and visit in visiting sites. 5- Commercial use and practical application: Geography readings and concepts can be read through the commercial use of maps in various advertisements and the practical application of maps in medium-sized projects.

10 .Course Structure				
Assessment Method	Teaching method	Topic	Hours	Week
- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	Scale (Type and Design), Choice of Suitable Scale.	2	1
- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	Changing Scale, Measuring Distance and Area from Maps.	2	2
- Regular Attendance - Skills in class. - Homework	Copy lecture, Data show, and board usage	Grid Construction, and Slope Measuring from Maps.	2	3
- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	Cartographic symbols and separation.	2	4
- Regular Attendance - Skills in class. - Homework	Copy lecture, Data show, and board usage	Representation of physical features.	2	5
- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	Representation of Artificial features.	2	6
- Regular Attendance - Skills in class.	Copy lecture, Data show, and board usage	Intervisibility and planning for map coverage.	2	7

- Homework				
- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	Lettering and Numbering.	2	8
- Regular Attendance - Skills in class. - Homework	Copy lecture, Data show, and board usage	Automation of map compilation.	2	9
- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	Automation of Image formation.	2	10
- Regular Attendance - Skills in class. - Homework	Copy lecture, Data show, and board usage	Plate making and Printing machines.	2	11
- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	Organization(Terminology, Flow chart, work schedule, time and cost estimation)	2	12
- Regular Attendance - Skills in class. - Homework	Copy lecture, Data show, and board usage	Revision (technical execution, deletion, addition and combined).	2	13
- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	Photomaps, orthophotomaps and Pict map.	2	14
Exam				

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, report
Annual pursuit = 40% distributed between Homework + daily and monthly exams + mid-year exam. Final exam = 60%
12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Introduction to Web Mapping books.google.iq › books Michael Dorman · 2020 FOUND INSIDE

Course Description Form

1. Course Name: **Engineering Analysis**	
2. Course Code: SVE10321	
3. Semester / Year:2023-2024	
4. Description Preparation Date:17/2/2024	
5. Available Attendance Forms: 17/2/2024	
6. Number of Credit Hours (Total) / Number of Units (Total)	
120/6	
7. Course administrator's name (mention all, if more than one name)	
Name: assit.Prof.Dr.Abdulwahab Mohammad Younis Email: abdulwahab.younis@uoalkitab.edu.iq	
8. Course Objectives	

Course Objectives	Identifying many advanced mathematical topics and their applications in various engineering fields, especially in the field of petroleum engineering and its applications, thus providing the student with the skill of mastering and implementing the equations and theories he has learned in his field of Specialization.

9. Teaching and Learning Strategies	

Strategy	Urging students to read the latest modern editions of analytics books engineering and its applications, as well as encouraging students to solve more applied questions In the field of specialization, knowledge, and learning, modern programs that address

	This scientific aspect develops the student's ideas and expands his scientific background in his field of specialization

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	The student must acquire full knowledge and theoretical and practical experience in the field of petroleum engineering	Introduction	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class.
2	4	The student must acquire full knowledge and theoretical and practical experience in the field of petroleum engineering	Solution of first order diff. equations.	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.
3	4	The student must acquire full knowledge and theoretical and	Application of first order diff. equations'	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class.

		practical experience in the field of petroleum engineering			- Homework
4	4	The student must acquire full knowledge and theoretical and practical experience in the field of petroleum engineering	Application of first order diff. equations.	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.
5	4	The student must acquire full knowledge and theoretical and practical experience in the field of petroleum engineering	Solution of 2nd order homogeneous ordinary diff. equations.	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework
6	4	The student must acquire full knowledge and theoretical and practical experience in the field of petroleum engineering	Solution of 2nd order non homogeneous ordinary diff. equations.	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.
7	4	The student must acquire full knowledge and theoretical and practical experience in the field of	Solution of higher order ordinary diff. equations	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework

		petroleum engineering			
8	4	The student must acquire full knowledge and theoretical and practical experience in the field of petroleum engineering	Euler's or Cauchy's Equation	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.
9	4	The student must acquire full knowledge and theoretical and practical experience in the field of petroleum engineering	Application of 2nd order ordinary diff. equations.	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework

10	4	The student must acquire full knowledge and theoretical and practical experience in the field of petroleum engineering	Application of 2nd order ordinary diff. equations.	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.
11	4	The student must acquire full knowledge and theoretical and practical experience in the field of petroleum	Application of 2nd order ordinary diff. equations.	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework

		engineering			
12	4	The student must acquire full knowledge and theoretical and practical experience in the field of petroleum engineering	Solution of simultaneous diff. equations.	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.
13	4	The student must acquire full knowledge and theoretical and practical experience in the field of petroleum engineering	Solution of D.E. by Laplace transformation	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework
14	4	The student must acquire full knowledge and theoretical and practical experience in the field of petroleum engineering	Solution of D.E. by Laplace transformation	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.
15	4	The student must acquire full knowledge and theoretical and practical experience in the field of petroleum engineering	Bessel's Functions	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class.

16	4	The student must acquire full knowledge and theoretical and practical experience in the field of petroleum engineering	Bessel's Functions	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.
17	4	The student must acquire full knowledge and theoretical and practical experience in the field of petroleum engineering	Fourier Series	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework
18	4	The student must acquire full knowledge and theoretical and practical experience in the field of petroleum engineering	Fourier Series	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes. 5
19	4	The student must acquire full knowledge and theoretical and practical experience in the field of petroleum engineering	Derivation of wave equation	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework
20	4	The student must acquire full	Partial diff. equations	Copy lecture, Data show, and	- Regular Attendance

		knowledge and theoretical and practical experience in the field of petroleum engineering		board usage	- Skills in class. - Homework - Quizzes.
21	4	The student must acquire full knowledge and theoretical and practical experience in the field of petroleum engineering	Partial diff. equations	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework
22	4	The student must acquire full knowledge and theoretical and practical experience in the field of petroleum engineering	Solution of wave equation	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.
23	4	The student must acquire full knowledge and theoretical and practical	Applications of wave	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class.

		experience in the field of petroleum engineering	equation		- Homework
24	4	The student must acquire full	`Applications of wave	Copy lecture, Data show, and	- Regular Attendance

		knowledge and theoretical and practical experience in the field of petroleum engineering	equation	board usage	- Skills in class. - Homework - Quizzes.
25	4	The student must acquire full knowledge and theoretical and practical experience in the field of petroleum engineering	Applications of wave equation	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework
26	4	The student must acquire full knowledge and theoretical and practical experience in the field of petroleum engineering	Numerical Methods and Taylor Series	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.
27	4	The student must acquire full knowledge and theoretical and practical experience in the field of petroleum engineering	Numerical Methods and Taylor Series	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework
28	4	The student must acquire full knowledge and theoretical and	Numerical Methods and Taylor Series	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class.

		practical experience in the field of petroleum engineering			- Homework - Quizzes.
29	4	The student must acquire full knowledge and theoretical and practical experience in the field of petroleum engineering	Numerical Methods and Taylor Series	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class.
30	4	The student must acquire full knowledge and theoretical and practical experience in the field of petroleum engineering	Numerical Methods and Taylor Series	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class.

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
Annual pursuit = 40% distributed between Homework + daily and monthly exams + mid-year exam. Final exam = 60%

12.Learning and Teaching Resources	
Required textbooks (curricular books, if any)	**Kreyszig, E." Advanced Engineering mathematics"**
Main references (sources)	Theory and Problems of Differential Equations,By Frank Ayres,JR,PhD

Recommended books and references (scientific journals, reports...)	Advanced Engineering Mathematics By Dass
Electronic References, Websites	

Course Description

1. Course name: Photogrammetry
2. Course code:SVE20328
3. Semester/Stage: Second
4. Date of preparing the description: 2024
5. Available forms of attendance: Daily attendance
6. Total number of units:
3 Units
7. Course administrator (if more than one name is mentioned)
Name: Arjan Sharaf Al-Din
8. Course objectives

A- Cognitive objectives

The course aims to introduce the analytical engineering of photogrammetry as a basic subject in surveying engineering and apply it numerically with applications on real field projects supported by theoretical principles and analysis.

9. Teaching and learning strategies:

1. **Explanation and clarification through lectures.**

2. **How to display scientific materials using display devices: data shows, smart boards, plasma screens.**

3. **Self-learning through homework and mini-projects within lectures**

10. Course structure:

Topic	Week
OVERVIEW: Photo and laser scanning	*1*
	2
	3
	4

TERRESTRIAL & CLOSE RANGE PHOTOGRAMMETRY	*5*
	6
	7
	8
	9
	10
CAMERA CALIBRATION: Terrestrial	*11*
	12
	13
PHOTOGRAMMETRIC PRODUCTS: DTM	*14*
	15
	16
	17
COORDINATE TRANSFORMATIONS	*18*
	19
Introduction & physical principles (Acronyms, history, physical principals, basic components, laser wavelength, lidar equation	*20*
	21
	22
	23
	24
laser scanning parameters, scanning mechanism, scan patterns, laser ranging)	*25*
	26
TERRESTRIAL & CLOSE RANGE PHOTOGRAMMETRY	*27*
CAMERA CALIBRATION: Terrestrial	*28*
PHOTOGRAMMETRIC PRODUCTS: DTM	*29*
	30

11. *Course evaluation:*

- **Interaction within the lecture**

- **Homework and reports**

- **Quizzes**

- **For semester and final exams.**

12. *Learning and teaching resources:*

	Prescribed books, if any:
Elements of Photogrammetry with Application in GIS,Paul R. Wolf,Bon A. DeWitt,Benjamin E. Wilkinson· 2013	Main references:
	Recommended supporting books and references: (scientific journals, reports):
	Electronic references:

Course Description Form

1. Course Name:	
Project Management	
2. Course Code: TM	
SVE22327	
3. Semester / Year:	
Semester	
4. Description Preparation Date:	
17/2/2024	
5. Available Attendance Forms:	
17/2/2024	
6. Number of Hours week	
2hr/week	
7. Course administrator's name (mention all, if more than one name)	
Name: Dr. Saad Namiq Email: saad.namiq@uoalkitab.edu.iq	

8. Course Objectives	
	1. Introduce basic definitions and introductory concepts of management. 2. Introduce the description for construction projects stages. 3- Introduce the description of engineering contract, parts of the contract, and Description of responsibility for each party. 4. Explain and description of methods of execution the works, advantages and Disadvantages for each method.
9. Teaching and Learning Strategies	

Strategy	To provide a broad understanding of project management
	To instill an understanding of formal project management processes
	To demonstrate how to apply project management principles on the job

10 .Course Structure

Assessment Method	Teaching Method	Unit/Module or Topic Title	Hours	Week	
- Regular Attendance - Skills in class.	Copy lecture, Data show, and board usage	Introduction to engineering projects management	2	1	
- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	Project (project definition, project characteristics, project life cycle)	2	2	
- Regular Attendance - Skills in class. - Homework	Copy lecture, Data show, and board usage	Project life cycle, establishment phase, planning phase, implementation phase	2	3	
- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	The monitoring and control phase and the completion phase of the project	2	4	
- Regular Attendance - Skills in class. - Homework	Copy lecture, Data show, and board usage	The construction process, the construction industry, the parties involved in the construction process	2	5	
- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	Programming engineering projects	2	6	
- Regular Attendance - Skills in class. - Homework	Copy lecture, Data show, and board usage	Balancing time and cost in project planning	2	7	
- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	bar chart method	2	8	

- Regular Attendance - Skills in class. - Homework	Copy lecture, Data show, and board usage	Critical Path method	2	9
- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	Net Work Planning	2	10
- Regular Attendance - Skills in class. - Homework	Copy lecture, Data show, and board usage	Engineering contracts	2	11
- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	Conditions of the contracting	2	12
- Regular Attendance - Skills in class. - Homework	Copy lecture, Data show, and board usage	Conditions of the contracting	2	13
- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	Conditions of the contracting		14

11. تقييم الدورة
توزيع الدرجة من 100 حسب المهام الموكلة للطالب مثل التحضير اليومي أو الامتحانات الشفهية اليومية أو الشهرية أو الكتابية أو التقرير
السعي السنوي = 40% موزعة بين الواجبات المنزلية + الاختبارات اليومية والشهرية + امتحان نصف العام. الامتحان النهائي = 60%

12. مصادر التعلم والتعليم	
الكتب الدراسية المطلوبة (كتب المناهج إن وجدت)	
المراجع الرئيسية (المصادر)	مقدمة في إدارة المشاريع كاثي شوالبي. 2009
الكتب والمراجع الموصى بها (المجلات العلمية، التقارير...)	مقدمة لإدارة المشاريع: كتاب مصدر ديفيز أ. إيجبيبرايسي. 2022
المراجع الإلكترونية، المواقع الإلكترونية	

Course Description Form

1. Course Name:

Remote sensing

2. Course Code:

SVE21324

3. Semester / Year:

Semester

4. Description Preparation Date:

17/2/2024

5. Available Attendance Forms:

17/2/2024

6. Number of Hours week

2

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

Name: Dr. Hayder Mahmood

8. Course Objectives

	The advantages of remote sensing include the ability to collect information over large spatial areas; to characterize natural features or physical objects on the ground; to observe surface areas and objects on a systematic basis and monitor their changes over time; and the ability to integrate this data with other

9. Teaching and Learning Strategies

	To make remote sensing education more engaging, educators can incorporate interactive and hands-on activities such as virtual field trips using satellite imagery, interactive simulations for data analysis, gamified learning modules, and collaborative projects where students can apply their skills to real-world problems

Assessment Method	Teaching method	Topic	Hours	Week
.Course Structure				
- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	Interaction with the auto sphere, Interaction with the target Remote sensing system, Active sensing system	2	1
- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	Sensors plate forms,(Ground, Air, Space) Satellite characteristics	2	2
- Regular Attendance - Skills in class. - Homework	Copy lecture, Data show, and board usage	Spectral resolution Radiometric resolution, Temporal resolution	2	3
- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	Multispectral scanner, thermal Imaging Geometric Distortion	2	4
- Regular Attendance - Skills in class. - Homework	Copy lecture, Data show, and board usage	Multispectral scanner, thermal Imaging Geometric Distortion	2	5
- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	Weather satellites, Land observation satellites	2	6
- Regular Attendance - Skills in class. - Homework	Copy lecture, Data show, and board usage	Exam	2	7

- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	Micro wave remote sensing, Radar Basics	2		8
- Regular Attendance - Skills in class. - Homework	Copy lecture, Data show, and board usage	Viewing geometry& Spatial resolution	2		9
- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	Image Distortion, Target interaction	2		10
- Regular Attendance - Skills in class. - Homework	Copy lecture, Data show, and board usage	Image properties Applications of Microwave remote sensing	2		11
- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	Image processing, Visual interpretation, Digital processing	2		12
- Regular Attendance - Skills in class. - Homework	Copy lecture, Data show, and board usage	Enhancement	2		13
- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	Transformation	2		14
Exam					

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, report	
Annual pursuit = 40% distributed between Homework + daily and monthly exams + mid-year exam. Final exam = 60%	
12.Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Department of Physical Geography and Ecosystems Sciences Lund University Introduction to Remote Sensing and Geographical Information Systems Ulrik Mårtensson

1. Course Name:
Technical Report
2. Course Code:
SVE11323
3. Semester / Year:
Semester
4. Description Preparation Date:
17/2/2024
5. Available Attendance Forms:
17/2/2024
6. Number of Hours week
2
7. Course administrator's name (mention all, if more than one name)
Name: Dr. Noor Nabeel Email: noor.nabeel@uoalkitab.edu.iq
8. Course Objectives

	The purpose of a technical report is to completely and clearly describe technical work, why it was done, results obtained and implications of those results. The technical report serves as a means of communicating the work to others and possibly providing useful information about that work at some later date.
9. Teaching and Learning Strategies	

Strategy	1. Model ideal behavior
	2. Let students help establish guidelines
	3. Document rules
	4. Avoid punishing the class
	5. Encourage initiative
	6. Offer praise
	7. Use non-verbal communication
	9. Give tangible rewards
	10. Build excitement for content and lesson plans
	11. Offer different types of free study time
	12. Assign open-ended projects
	13. Give low scores for informal assessments
	14. Address inappropriate or off-task behavior quickly
	15. Consider peer teaching

This scientific aspect develops the student's ideas and expands his scientific background in his field of specialization

10. Course Structure

الاسبوع	الساعات	الموضوع
1	2	Introduction
2	2	Planning the technical report
3	2	Planning the technical report
4	2	Accepting and analyzing the task
5	2	Check or Create the title
6	2	Work the steps to create structure of the report and example
7	2	Writing and creating the technical report
8	2	Parts and layout of the technical report
9	2	Front cover sheet and title leaf
10	2	The introduction
11	2	The summery
12	2	The structure of the technical report according to ISO 7144
13	2	Qualities of a good technical report
14	2	Corrections and errors resulting from writing the report
15	Exam	

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, report

Annual pursuit = 40% distributed between Homework + daily and monthly exams + mid-year exam. Final exam = 60%

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	**Kreyszig, E." Advanced Engineering mathematics"**
Main references (sources)	Theory and Problems of Differential Equations,By Frank Ayres,JR,PhD
Recommended books and references (scientific journals, reports...)	Advanced Engineering Mathematics By Dass
Electronic References, Websites	

Academic Course Description

1. Course Name:
Geodesy
2. Course Code:
SVE20433
3. Semester / Year:
Annual
4. Description Preparation Date:
17/2/2024
5. Available Attendance Forms:
Attendance
6. Number of Hours week
2 hr/week
7. Course administrator's name (mention all, if more than one name)
Name: Sami Hameed
8. Course Objectives
the longest time, geodesy was the science of measuring and understanding Earth's netric shape, orientation in space, and gravitational field; however, geodetic science and ations are applied to other astronomical bodies in our Solar System also
9. Teaching and Learning Strategies
The scientific objective of geodesy is to determine the size and shape of the Earth. The practical role of geodesy is to provide a network of accurately surveyed points on the Earth's surface, the vertical elevations and geographic positions of which are precisely known and, in turn, may be incorporated in maps

| | | | | .Course Structure 10. |

| Week | Topic | Hour |

1

Week	Unit/Module or Topic Title	Hours	Teaching Method	Assessment Method
1	Introduction and definitions	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class.
2	The sphere as a reference surface	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.
3	Geographical coordinates system	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework
4	Transformation between geographical coordinates systems	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.
5	The definition of spheroid reference system	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework
6	Relationship between eccentricity and flattening	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.
7	Relationship between geodetic	4	Copy lecture, Data show, and board usage	- Regular Attendance

| | | | | - Skills in class. |
				- Homework
8	geocentric and reduce latitude	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.
9	Geodetic reference systems of coordinates	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework
10	Radii of curvature of spheroid	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.
11	Radius of prime vertical	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework
12	Radius of oblique normal section	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.
13	Area of part of spheroid and total area of spheroid	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework
14	Length of loxodrom	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.
15	First semester exam	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class.

16	Reciprocal normal section	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.
17	The effect of height of signal due to azimuth	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework
18	Reduction of measured quantities in triangulation networks	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework
19	Transformation from normal length to geodesic	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework
20	Differential equations for geodesic line Direct and inverse geodetic problems 1st principal problem (forward comp.) , Legendre solution (forward comp.)	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.
21	Accurate solution using tables (forward comp.)	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework
22	Approximate inverse computations	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.
23	Accurate inverse computations	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework
24	The effect of change of	4	Copy lecture, Data	- Regular

				spheroidal parameters due adjusted angles		show, and board usage	Attendance - Skills in class. - Homework - Quizzes.
25	Adjustment of geodetic figure (central point figure)	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework
26	Astrogeodetic orientation of spheroid	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.
27	Physical geodesy and gravimetry , Specifications of equal potential surfaces	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework
28	Laplace azimuth , Computing the separation between geoid and spheroid from astro geodetic deviation	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.
29	Optometric heights , Dynamic heights	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class.
30	Second semester exam			

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, report

Annual pursuit = 40% distributed between Homework, daily and monthly + mid-year exam

Final exam = 60%

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	

Main references (sources)	Introduction to GNSS Geodesy Foundations of Precise Positioning Usin g Global Navigation Satellite Systems By Clement A. Ogaja · 2022	
Recommended books and references (scientific journals, reports...)		
Electronic References, Websites		

Academic Course Description

1. Course Name:

GIS

2. Course Code:

SVE20431

3. Semester / Year:

Annual

4. Description Preparation Date:

17/2/2024

5. Available Attendance Forms:

Attendance

6. Number of Hours week

2 hr/week

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

Name: Dr. Hayder Mahmood

8. Course Objectives

This course aims to introduce the fundamental concepts of geographical information system in addition to the applications of GIS in Surveying Engineering

9. Teaching and Learning Strategies

The best way to learn GIS skills is to practice with real data and real problems. You can find many sources of spatial data online, such as the USGS National Map, the Natural Earth Data, and the Open Street Map. You can also create your own data by collecting, digitizing, or geocoding information from various sources

Skills you'll gain: ArcGIS, Data Analysis, Data Visualization, GIS Software, Spatial Analysis, Spatial Data Analysis, Data Visualization Software, Databases, Revisualization, Interactive Data Visualization, Leadership and Management.

Week	Topic	Hour		
1	Introduction to GIS	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class.
2	Data and Information	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.
3	Spatial Data and attribute Data	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework
4	Vectors and Rasters	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.
5	Spatial Referencing	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework
6	coordinates systems	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.
7	Measurements on vectors	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework
8	Measurements land	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.
9	Spatial selection Queries	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework
10	Classifications	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.
11	Data base management systems	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework
12	Exam	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.
13	Spatial analysis: Overlay functions [clip,]	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework
14	intersect, union, erase, identity	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.
15	Proximity:[buffer, polygon]	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class.
16	Statistics:[frequency]	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.
17	summary statistics	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework
18	Data presentation:3D analysis	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.
19	3D objects	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.

20	Surfaces:[raster, TIN]	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.
21	Conversion between raster and TINs	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework
22	Surface analysis:[slope, aspect, , hill shade,]	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.
23	contour, cut/fill	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework
24	view shade	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.
25	area and volume	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework
26	Open source software	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.
27	Web mapping	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework
28	Examples of web mapping	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.
29	Web mapping processing	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class.
30	Exam			

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, report

Annual pursuit = 40% distributed between Homework, daily and monthly + mid-year exam

Final exam = 60%

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	Introduction to Geographic Information Systems Kang-Tsung Chang · 2002
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Academic Course Description

1. Course Name:
Map Projection

2. Course Code:
SVE20436

3. Semester / Year:
Annual

4. Description Preparation Date:
17/2/2024

5. Available Attendance Forms:
Attendance

6. Number of Hours week
4 hr/week

7. Course administrator's name (mention all, if more than one name)
Name: Dr.Arjan Sharafaldeen Email: arjan.sha@uoalkitab.edu.iq

8. Course Objectives
Map projection is the process of representing a celestial body (such as the ellipsoidal earth surface) onto a flat surface. The primary purpose of map projection is to create an easier way to measure distances, calculate areas, determine azimuth, and find the shortest route. Projections are a mathematical transformation that take spherical coordinates (latitude and longitude) and transform them to an XY (planar) coordinate system. This enables you to create a map that accurately shows distances, areas, or directions.

9. Teaching and Learning Strategies
• Principle: The plane of projection is tangent at either of the poles. The parallels of latitude are projected as concentric circles- closer towards the center and farther apart towards the edges. The meridians are radiating straight lines at true angular distances apart

Week	Topic Title	Hours	Teaching Method	Assessment Method
				10 .Course Structure
Week	Topic Title	Hours	Teaching Method	Assessment Method
1	Introduction, Scale	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class.
2	Latitudes and longitudes, Small and Great Circles:2ch. 1.	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.
3	Distortion : 1 ch.4, 3 ch. 10	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework
4	Distortion : 1 ch.4, 3 ch. 10	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.
5	Classification of Projection and their Properties:1 ch.5, 3 ch. 10.	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework
6	Ciassification of Projection and their Properties:1 ch.5, 3 ch. 10.	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.
7	Construction and Characteristics of Cylindrical Projections 1 ch.5 ,2ch. 7, 3 ch. 10 ,4 ch.2 .	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework
8	Construction and Characteristics of Cylindrical Projections 1 ch.5 ,2ch. 7, 3 ch. 10 ,4 ch.2 .	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.
9	Orthomorphic Mercotor's Projection: 1 ch.4&5 and 10.	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework
10	Cassini s projection:1 ch. 11, 2 ch.8.	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.
11	Conformal Transverse Mercator's Proj.,U.T.M:4 ch.2,1 ch.10, 11 and 12.	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework
12	Normal Secant Cylindrical Projections:2 ch.8, 4 ch.2.	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class

				- Homework - Quizzes.
13	Conical Projections:(Normal and Tangential):1 ch.5, 8 and 10, 2 ch.6, 3 ch.10 , 4 ch .3.	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework
14	The Conical Projection With Tow Standard Parallels :1 ch.5, 2 ch.6 ,4 ch.2.	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.
15	Conical Equal Area (Bonne's Proj.):2 ch.6 ,4 ch.3,3 ch.10.	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class.
16	The Polyconic Projection:2 ch.6.	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.
17	Zenthal Projections:1 ch.4,5,10,2 ch.4, 3 ch.10, 4 ch.5.	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.
18	Gnomonic Projections(Polar and Equatorial):2 ch.4, 3 ch.10 ,4 ch.5.	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.
19	Stereographical Projections(Polar and Equatorial):4 Ch.5,2 ch.4 ,3 ch .10.	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework
20	Orthographic Projections(Polar and Equatorial):2 ch .4, 1 ch .9, 4 ch.5.	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.
21	Orthographic Projections(Polar and Equatorial):2 ch .4, 1 ch .9, 4 ch.5.	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework
22	Orthographic Projections(Polar and Equatorial):2 ch .4, 1 ch .9, 4 ch.5.	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.
23	Analysis of the Relationships between the Zenithal	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework
24	Non – Perspective ZenithalProjections,The Zenithal Equidistant Proj:2 ch.4 ,4 ch.5.	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework

				- Quizzes.
25	The Zenithal Equal – Area Projections:2 ch.4, 4 ch.5, 3 ch.10, 1 ch.8.	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework
26	Practical Construction of Map Projection:1ch .6.	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.
27	The Projection Tables,Scale Conversion of the Tabulated Coordinates:1 ch.6, ch. 7.	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework
28	Relationships between Graticules and Grids: 1 ch.2 ,ch.3, ch.5, ch.6.	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.
29	The choice of a Suitable Map Projection :1 ch.9, 3 ch.10, 2 ch.13, 4 ch.6.	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class.
30	The choice of a Suitable Map Projection :1 ch.9, 3 ch.10, 2 ch.13, 4 ch	4	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class.

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, report

Annual pursuit = 40% distributed between Homework, daily and monthly + mid-year exam +10% practical lab. Final exam = 50%

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	Introduction to Map Projections Porter W. McDonnell · 1991
Recommended books and references (scientific journals, reports...)	An Introduction to the Mathematics of Map Projections R. K. Melluish · 2014
Electronic References, Websites	

Academic Course Description

1. Course Name:	
Numerical Methods	
2. Course Code:	
SVE20326	
3. Semester / Year:	
Semester	
4. Description Preparation Date:	
17/2/2024	
5. Available Attendance Forms:	
Attendance	
6. Number of Hours week	
2 hr/week	
7. Course administrator's name (mention all, if more than one name)	
Name: Dr.Noor Nabeel	
Email: noor.nabeel@uoalkitab.edu.iq	

8. Course Objectives

This course will emphasize the development of numerical algorithm to provide solutions, to common problems formulated in science and engineering. The primary objective of the course is to develop the basic understanding of the construction of numerical algorithm. And perhaps more importantly the applicability and limit of their appropriate use. The emphasize of the course will be through the study of numerical algorithms to 1- understand the guaranteed accuracy that various methods provide 2-the efficiency and scalability for large scale systems 3- issue of stability. Topics include the standard algorithms for numerical computation

9. Teaching and Learning Strategies

- Explicit Instruction where clear, direct, and structured instructions are given to students in a formal setting.
- Cooperative learning, where students form mixed-ability (heterogeneous) groups to discuss and learn together
- The flipped classroom where the conventional order of teaching is flipped around

10 .Course Structure

Assessment Method	Teaching Method	Topic Title	Hours	week
		Interpolation	2	1
- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	Interpolation	2	2
- Regular Attendance - Skills in class. - Homework	Copy lecture, Data show, and board usage	Root finding	2	3
- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	Root finding	2	4
- Regular Attendance - Skills in class. - Homework	Copy lecture, Data show, and board usage	Solution of simultaneous equations	2	5
- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	Solution of simultaneous equations	2	6
- Regular Attendance - Skills in class. - Homework	Copy lecture, Data show, and board usage	Solution of ODE /first order	2	7
- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	Solution of ODE /first order	2	8

- Regular Attendance - Skills in class. - Homework	Copy lecture, Data show, and board usage	Solution of ODE /Second order	2	9
- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	Solution of ODE /Second order	2	10
- Regular Attendance - Skills in class. - Homework	Copy lecture, Data show, and board usage	Solution of PDE Finite difference	2	11
- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	Solution of PDE Finite difference	2	12
- Regular Attendance - Skills in class. - Homework	Copy lecture, Data show, and board usage	Solution of PDE Finite difference	2	13
- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	Solution of PDE Finite difference	2	14
- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	Exam	2	15

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, report

Annual pursuit = 40% distributed between Homework, daily and monthly + mid-year exam

Final exam = 60%

12.Learning and Teaching Resources	
Required textbooks (curricular books, if any)	
Main references (sources)	An Introduction to Numerical Methods and Analysis James F. Epperson · 2013
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Academic Course Description

1. Course Name:
Analytical Photogrammetry
2. Course Code:
SVE20434
3. Semester / Year:
Annual
4. Description Preparation Date:
17/2/2024
5. Available Attendance Forms:
Attendance
6. Number of Hours week
2 hr/week
7. Course administrator's name (mention all, if more than one name)
Name: Arjan Sharfaldeen
8. Course Objectives
The course aims to introduce the close-range geometry of photogrammetry as a core subject in Surveying Engineering in addition to laser scanning technology as a new felid integrated to photogrammetry.
9. Teaching and Learning Strategies
The student should deliver a complete knowledge and practical experience of applying close-range photogrammetric solution to solve Surveying problems and have a principal knowledge about laser scanning techniques.

Week	Hours	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	5	**OVERVIEW: Photo and laser scanning**	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class.
5	25	**TERRESTRIAL & CLOSE RANGE PHOTOGRAMMETRY**	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.
3	15	**CAMERA CALIBRATION: Terrestrial**	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework
3	15	**PHOTOGRAMMETRIC PRODUCTS: DTM**	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.
3	15	**COORDINATE TRANSFORMATIONS**	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework
5	25	**Introduction & physical principles (Acronyms, history, physical principals, basic componants, laser wavelength, lidar equation**	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.
3	15	**laser scanning parameters,**	Copy lecture, Data show, and	- Regular Attendance

		scanning mechanism, scan patterns, laser ranging)	board usage	- Skills in class. - Homework
3	15	**ALS systems (Discrete-return, Full-waveform)**	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.
2	10	**FWF-ALS data calibration and georeferencing (data quality, ALS data calibration**	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework
2	10	**strip adjustment, radiometric calibration, radar eq.**	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.

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, report

Annual pursuit = 40% distributed between Homework, daily and monthly + mid-year exam +practical 10% Final exam =50%

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	Analytical Photogrammetry Snjib Kumar Ghosh · 1988 ·
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Academic Course Description

1. Course Name:	
Survey with Satellite	
2. Course Code:	
SVE21432	
3. Semester / Year:	
Semester	
4. Description Preparation Date:	
17/2/2024	
5. Available Attendance Forms:	
Attendance	
6. Number of Hours week	
2 hr/week	
7. Course administrator's name (mention all, if more than one name)	
Name: Sami Hameed	
Email: sami.hamed@uoalkitab.edu.iq	

8. Course Objectives
course aims to learn the Autocad program and the instructions related to the program, as as how to use the program in surveying works

9. Teaching and Learning Strategies
Satellite survey remote sensing utilize satellite imagery which have been processed using commercial geographic information system software. Three-space co-ordinate maps are generated, with an accuracy determined by the datum position accuracy and optical resolution of the satellite platform

10. Course Structure

Week	Hours	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	2	المقدمة / الحاجة إلى خرائط ال CAD وتفاصيلها تعريف بيئة Auto Cad الأشرطة الرئيسية	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class.
2	2	التعامل مع ملفات في Auto Cad أنظمة الإحداثيات المستخدمة (المطلقة – النسبية) أنظمة – Ortho Polar	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.
3	2	أوامر الرسم في Auto Cad التعامل مع إيعاز Line —	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework
4	2	التعامل مع الايعازات Circles ,Osnap, Arc, Multi line, Spline, Polyline أوامر الرسم الأخرى Fillet, Polygon, Rectangle,	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.
5	2	أوامر التعديل في Auto Cad Move, Erase, Rotate, Scale, Stretch,	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework
6	2	نسخ العناصر في Auto Cad النسخ المصفوف Mirror, Copy, Offset, Array	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.
7	2	الكتابة في Auto Cad والتعامل مع ايعاز Text, الكتابة في سطر واحد، الكتابة متعددة السطور.	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework
8	2	الأبعاد Dimension Lines and Arrows/ أنواع الأبعاد.	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.
9	2	التعامل مع البلوكات (Blocks) التهشئ (Hatching)	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework
10	2	الطبقات حالات الطبقات الطباعة Layers	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.
11	2	التعامل مع البرنامج التخصصي لمهندسي المساحة Auto Desk Land Desktop 2006 التعريف بالبرنامج، تكوين مشروع جديد، فتح مشروع	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework
12	2	ادخال النقاط الى البرنامج عن طريق فايلات والتعامل مع قائمةPoint	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.
13	2	كيفية عمل سطح Terrain يدخل طريقة الربط بنّ النقاط المختلفة التعديل على السطح— التعامل مع الخرائط الكنتورية.	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - 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, report

Annual pursuit = 40% distributed between Homework, daily and monthly + mid-year exam

Final exam = 60%

12.Learning and Teaching Resources	
Required textbooks (curricular books, if any)	
Main references (sources)	Autodesk Civil 3D 2021: Fundamentals for Surveyors (Imperial) Ascent - Center for Technical Knowledge · 2020 ·
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Academic Course Description

1. Course Name:	
Survey with Satellite	
2. Course Code:	
SVE20438	
3. Semester / Year:	
Annual	
4. Description Preparation Date:	
17/2/2024	
5. Available Attendance Forms:	
Attendance	
6. Number of Hours week	
2 hr/week	
7. Course administrator's name (mention all, if more than one name)	
Name: Sami Hameed	
Email: sami.hamed@uoalkitab.edu.iq	

8. Course Objectives

This course is prepared for undergraduate students. It starts with general introduction about the development of global surveying techniques and this includes different subjects, such as optical global triangulation, electromagnetic global trilateration, and satellite-based positioning. Furthermore, different positioning and navigation satellite systems are presented and highlighted in this course. After this general introduction of the GNSS, the Global Positioning System is dealt with in details. Additionally, this course focuses on further three main themes. These are: International GNSS Service (IGS) (as it is the main source of GNSS data and products); GNSS observables; Finally, Mathematical models for GPS

9. Teaching and Learning Strategies

Satellite survey remote sensing utilize satellite imagery which have been processed using commercial geographic information system software. Three-space co-ordinate maps are generated, with an accuracy determined by the datum position accuracy and optical resolution of the satellite platform

0 .Course Structure

Week	Unit/Module or Topic Title	Hours	Teaching Method	Assessment Method
			Course Structure	
1	Introduction and definitions	2	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class.
2	GNSS: Theory and Principles	2	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.
3	Development of Global Positioning Techniques Introduction to GNSS- GPS, GLONASS, Galileo, Compass (or Beidou- & more	2	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework
4	Global Positioning System Basics GPS segments: The Control Segment Monitor stations, Master control station, Ground antennas	2	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.
5	Space Segment: GPS satellite Constellation GPS satellite	2	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework

				Categories
6	User Segment	2	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.
7	GPS satellite signals structure: Introduction: Physical fundamentals, Propagation effects, Frequency standards	2	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework
8	Signal Structure: Signal design, Carrier frequency, Ranging code	2	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.
9	Pseudo-Random Noise (PRN) codes and modulation: C/A code, P code, L2C code, L5C code, and L1C code	2	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework
10	Navigation Messages (NAV)	2	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.
11	GPS Satellite Orbit Satellite Orbit Description	2	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework

	Keplerian Motion Perturbed Motion			
12	GPS Satellite Orbit Modelling Keplerian Orbit Perturbed Orbit	2	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework - Quizzes.
13	The orbital elements: Categories of the orbital information The Almanac Data	2	Copy lecture, Data show, and board usage	- Regular Attendance - Skills in class. - Homework

11.Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily ora| mon

Annual pursuit = 40% distributed between Homework, daily and monthly + mid-year exam

Final exam = 60%

12.Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	Alfred Leick · 1995 ·
Recommended books and references (scientific journals, reports...)	Antonio Jose Vazquez Alvarez, Richard Scott Erwin · 2015
Electronic References, Websites	

Academic Course Description

1. Course Name:	
Transportation	
2. Course Code:	
SVE20430	
3. Semester / Year:	
Semester	
4. Description Preparation Date:	
17/2/2024	
5. Available Attendance Forms:	
Attendance	
6. Number of Hours week	
2 hr/week	
7. Course administrator's name (mention all, if more than one name)	
Name: Ahmed Jassim	
Email: ahmed.jasim@uoalkitab.edu.iq	

8. Course Objectives

...ms of the Course: Teaching basics of transportation Engineering which includes: road user ...racteristics, traffic volume and speed studies, highway economy and finance, route location, ...nning, geometric design, earth work calculation, parking study, street lighting study, road ...ty study, road marking, road signs, construction equipment, road maintenance

9. Teaching and Learning Strategies

- Identify transportation issues and objectives.
- Gather and analyze available data.
- Assess public input on transportation issues.
- Approval: Public Input.
- Develop preliminary transportation alternatives.
- Use transportation models to evaluate alternatives

10 .Course Structure

Assessment Method	Teaching Method	Topic Title	Hours	week
- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	Introduction	2	1
- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	road user characteristic	2	2
- Regular Attendance - Skills in class. - Homework	Copy lecture, Data show, and board usage	traffic volume study	2	3
- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	Traffic speed study	2	4
- Regular Attendance - Skills in class. - Homework	Copy lecture, Data show, and board usage	highway economy and finance	2	5
- Regular Attendance - Skills in class. - Homework	Copy lecture, Data show, and board usage	Route location and planning	2	6

- Quizzes.				
- Regular Attendance - Skills in class. - Homework	Copy lecture, Data show, and board usage	Geometric design	2	7
- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	Parking and lighting study Earthwork calculation	2	8
- Regular Attendance - Skills in class. - Homework	Copy lecture, Data show, and board usage	Road safety, road marking	2	9
- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	Road signs, construction equipment	2	10
- Regular Attendance - Skills in class. - Homework	Copy lecture, Data show, and board usage	Road maintenance	2	11
- Regular Attendance - Skills in class. - Homework - Quizzes.	Copy lecture, Data show, and board usage	Exam	2	15

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, report

Annual pursuit = 40% distributed between Homework, daily and monthly + mid-year exam

Final exam = 60%

12.Learning and Teaching Resources	
Required textbooks (curricular books, if any)	
Main references (sources)	Transportation Engineering: An Introduction C. Jotin Khisty · 1998
Recommended books and references (scientific journals, reports...)	Transportation Engineering: Introduction to Planning, Jason C. Yu · 19
Electronic References, Websites	