Ministry of Higher Education and Scientific Research
Supervision and Scientific Evaluation Authority
Department of Quality Assurance and Academic Accreditation

Academic Program Description Form for Colleges and Institutes
Academic Year

University: Shatt Al-Arab
College/Institute: Engineering
Scientific Department: Civil
Date of Form Completion: 01/09/2024

Signature
Name of Head of Department:

Asst. Lecturer Nabeel Najm Abdullah

Signature

Name of Scientific Assistant: Dr. Jawad Kadhim

Reviewed by:
Quality Assurance and University Performance Division
Name of Division Director: Dr. Jasem Mohsen Yasser

Signature:

الدكتور
جاسم محسن ياسر
Dr.Jasim Al-Battat

Dean's Approval

أ.م.د.احسان قاسم محمد
عميد كلية الهندسة

MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

Module Information معلومات المادة الدراسية					
Module Title	**Engineering Survey 1**			**Module Delivery**	
Module Type	**Core**			☐ **Theory** ☐ **Lecture** ☐ **Lab** ☐ **Tutorial** ☐ **Practical**	
Module Code	**CE215**				
ECTS Credits	**4**				
SWL (hr/sem)	**75**				
Module Level	2		**Semester of Delivery**	1,2	
Administering Department	Type Dept. Code		**College**	Type College Code	
Module Leader	Ali Hussein		**e-mail**		
Module Leader's Acad. Title	Ass. Lecturer		**Module Leader's Qualification**	M. Sc.	
Module Tutor			**e-mail**		
Peer Reviewer Name	Name		**e-mail**	E-mail	
Scientific Committee Approval Date	01/09/2024		**Version Number**	1.0	

Relation with other Modules العلاقة مع المواد الدراسية الأخرى			
Prerequisite module	None	**Semester**	
Co-requisites module	ENGINEERING DRAWING	**Semester**	1-1

Module Aims, Learning Outcomes and Indicative Contents أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية	
Module Aims أهداف المادة الدراسية	The aim of this Module is to provide the student with a deep understanding of surveying and construction activities; practical application of topographic surveying skills, an awareness of the preliminary considerations involved in construction developments and a knowledge of the materials and procedures employed in construction of small commercial/industrial building works.
Module Learning Outcomes مخرجات التعلم للمادة الدراسية	1. Apply the basic surveying concepts, principles, and theories on distance and angular measurements as well as area computation. 2. Solve distances, elevations, and areas from a provided set of survey data. 3. Apply the basic surveying concepts, principles, and theories on determining horizontal and vertical distances using stadia. 4. Compute the missing data from incomplete traverse data. 5. Acquire a working knowledge of the design and layout of horizontal or vertical curves in highways or railways. 6. Determine and use the appropriate methodology in calculating earthworks in various civil engineering constructions.
Indicative Contents المحتويات الإرشادية	LESSON 1: Introduction to Surveying a. Surveying Concepts b. Types of Surveys c. Importance of Surveying d. Surveying Equipment and Accessories e. Measurement f. Sources of Errors g. Errors and Mistakes h. Accuracy and Precision Distance Measurement a. Measurement of Horizontal Distance - Pacing - Taping - Tachymetry - Graphical & Mathematical Method - Mechanical Devices - Photogrammetry b. Taping Over Level Ground Taping Along Sloping Ground LESSON 3: Distance Corrections a. Types of Correction b. Incorrect Tape Length c. Temperature Variations d. Slope Corrections e. Sag and Tension Corrections f. Combined Taping Corrections g. Errors in Taping h. Taping Precision LESSON 4: Leveling Methods a. Importance of Leveling b. Reference Elevations or Datums c. Types of Level d. Methods of Leveling e. Differential Leveling f. Leveling Errors g. Profile Leveling h. Profiles and Cross Sections LESSON 5: Angles and Directions Measurements a. Meridians b. Azimuth c. Bearings d. The Compass e. Local Attraction f. Traverse Angle Definitions g. Traverse Computations h. Transits and Theodolites i. Introduction to Total Stations j. Advantages and Disadvantages of Total Stations k. Surveying with Total Stations l. Measuring Horizontal Angles m. Closing the Horizon n. Measuring Zenith Angles CLO 1, 2, & 3 Synchronous • Lesson 5: Angles and Direction Measurement Sample Problems • Discussion of QUIZ # 1 • Asynchronous • Lesson 5: Angles and Direction Measurement Asynchronous Seatwork # 4 Assignment # 4 5th

	Traverse Adjustment and Area Computation a. Methods of Calculating Areas b. Balancing Angles c. Latitudes and Departures d. Error of Closure e. Balancing Latitudes and Departures f. Double Meridian Distances g. Double Parallel Distances h. Rectangular Coordinates i. Areas Computed by Coordinates j. Areas Within Irregular Boundaries LESSON 8: Topographic Survey a. Introduction to Topographic Survey b. Contours c. Plotting of Contour Characteristics d. Map Symbols e. Transit-Stadia Method of Mapping f. Plane Table Surveys g. Profiles from Contour Maps h. The Stadia Theory a. Measurement by Stadia for Horizontal distances b. Measurement by Stadia for inclined Distance c. Sources of Error in stadia work. LESSON 9: Horizontal curves a. Simple Curve b. Compound Curve c. Reverse Curve Spiral Curve Lesson 10: Vertical Curves a. Symmetrical Parabolic Curve b. Unsymmetrical Parabolic Curve

Learning and Teaching Strategies استراتيجيات التعلم والتعليم	
Strategies	Problem set assignments are due at the beginning of class. Homework can be turned in early if a student expects to be absent. • Guidelines for homework: a. All solutions will be submitted on 8 ½" x 11" paper. b. Solutions will be presented on one side of each sheet only. c. The first page will contain the following in the upper left margin: - Student's name - Student number - Course code and Course Title - Indicate the Problem set d. The final answer must be boxed together with the correct units. e. Clarity and neatness are vital. Points may be taken off for sloppiness.

Student Workload (SWL) الحمل الدراسي للطالب محسوب لـ 15 اسبوعا			
Structured SWL (h/sem) الحمل الدراسي المنتظم للطالب خلال الفصل	128	**Structured SWL (h/w)** الحمل الدراسي المنتظم للطالب أسبوعيا	9

Unstructured SWL (h/sem) الحمل الدراسي غير المنتظم للطالب خلال الفصل	97	**Unstructured SWL (h/w)** الحمل الدراسي غير المنتظم للطالب أسبوعيا	6.46
Total SWL (h/sem) الحمل الدراسي الكلي للطالب خلال الفصل	225		

Module Evaluation
تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
Formative assessment	**Quizzes**	2	10% (10)	3&9	LO 1&2&3
	Assignments	2	10% (10)	5&13	LO 2&5
	Projects / Lab.	1	10% (10)	12	LO 6
	Report	1	10% (10)	10	LO 5 & 4
Summative assessment	**Midterm Exam**	2 hr	10% (10)	15	All
	Final Exam	2hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

	Material Covered
Week 1	Introduction to Surveying Distance Measurement
Week 2	Distance Corrections
Week 3	Leveling Methods
Week 4	Angles and Directions Measurements
Week 5	Traverse Adjustment and Area Computation
Week 6	Topographic Survey
Week 7	Topographic Survey
Week 8	Horizontal curves
Week 9	Vertical Curves
Week 10	Earthwork Operations & Mass Diagram
Week 11	Earthwork Operations & Mass Diagram

Week 12	Global Positioning System
Week 13	Satellite survey
Week 14	GIS
Week 15	GIS
Week 16	**Preparatory week before the final Exam**

Delivery Plan (Weekly Lab. Syllabus) المنهاج الاسبوعي للمختبر	
	Material Covered
Week 1	Tape measurement
Week 2	Tape measurement
Week 3	Tape measurement
Week 4	Leveling
Week 5	Leveling
Week 6	Leveling
Week 7	Theodolite
Week 8	Theodolite
Week 9	Total Station
Week 10	Total Station
Week 11	Total Station
Week 12	Total Station
Week 13	Total Station
Week 14	Total Station
Week 15	Total Station

Learning and Teaching Resources مصادر التعلم والتدريس		
	Text	**Available in the Library?**
Required Texts		no

Recommended Texts	1. Surveying: Theory and Practice by James M. Anderson and Edward M. Mikhail, (7th Edition), 2002 2. Kavanagh, Barry F., Surveying: Principles and Applications (9th Edition), 2014 3. Kavanagh, Barry F., Surveying with Construction Applications (8th Edition), 2015 4. Ghilani, C.D., and Wolf, P.R., Elementary Surveying: An Introduction to Geomatics (13th Edition), 2011 5. Schofield W. and M. Breach, Engineering Surveying, (6th Edition), 2007 6. La Putt, J.P., Elementary Surveying (3rd Edition) 2013 Reprint 7. La Putt, J.P., Higher Surveying (2nd Edition) 2013 Reprint	No
Websites		

Grading Scheme
مخطط الدرجات

Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	**A** - Excellent	امتاز	90 - 100	Outstanding Performance
	B - Very Good	جـ د جدا	80 - 89	Above average with some errors
	C - Good	جـ د	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	**FX** – Fail	راسب (قد المعالجة)	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

Note: Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.