

# MODULE DESCRIPTION FORM

## نموذج وصف المادة الدراسية

Module Information			
معلومات المادة الدراسية			
Module Title	Geomatics		Module Delivery
Module Type	Core		<input checked="" type="checkbox"/> Theory <input type="checkbox"/> Lecture <input checked="" type="checkbox"/> Lab <input type="checkbox"/> Tutorial <input type="checkbox"/> Practical <input type="checkbox"/> Seminar
Module Code	CIER 222		
ECTS Credits	5		
SWL (hr/sem)	125		
Module Level	1	Semester of Delivery	
Administering Department	CIER	College	
Module Leader	Dr. Adil Naher	e-mail	adil.abed@muc.edu.iq
Module Leader's Acad. Title	Assistant Professor	Module Leader's Qualification	Ph.D.
Module Tutor	Name (if available)	e-mail	E-mail
Peer Reviewer Name	Name	e-mail	E-mail
Scientific Committee Approval Date	01/06/2023	Version Number	1.0

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

## Module Aims, Learning Outcomes and Indicative Contents

### أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية

<p><b>Module Objectives</b> أهداف المادة الدراسية</p>	<ol style="list-style-type: none"> <li>1. Have the basic math and science knowledge and technical skills of the Surveying and Geomatics Engineering Technology discipline appropriate to enter careers in the geospatial community, for example, boundary surveying and legal principles, route and construction surveying, survey measurement analysis and adjustments, Global Positioning System (GPS), photogrammetry, geodesy, land/Geographic Information Systems (GIS), cartography, 3D scanning and mapping.</li> <li>2. Have the ability to execute surveying/geomatics project activities for delivery in response to the needs of private and public industry.</li> <li>3. Have appropriate understanding of standards and specifications of surveying/geomatics practices in analyzing positional accuracy of measurement systems and in preparing land records and plats by meeting legal requirements.</li> <li>4. Have the knowledge to pass the national Fundamentals of Surveying examination, and maintain a commitment to lifelong learning.</li> <li>5. Have an understanding of the professional, ethical, and social issues with commitment to quality and dependability.</li> </ol>
<p><b>Module Learning Outcomes</b> مخرجات التعلم للمادة الدراسية</p>	<ol style="list-style-type: none"> <li>1. Apply introduction and knowledge to Geomatics engineering.</li> <li>2. Design and conduct experiments, as well as analyze and interpret data.</li> <li>3. Use the techniques, skills, and modern engineering tools necessary for Geomatics practice.</li> <li>4. Identify, formulate, and solve Geomatics engineering problems.</li> <li>5. Create and manage databases for Contour maps, and Civil 3d program.</li> <li>6. Function effectively as individuals within multidisciplinary teams.</li> <li>7. Create and use related computer programs in the field of geomatics engineering.</li> <li>8. Develop research studies that apply qualitative research methods related to geomatics engineering subjects.</li> <li>9. analyze the latest knowledge and concurrent issues in surveying and geomatics engineering efficiently</li> <li>10. Apply the traits of good leadership, responsibility, passion, and active engagement in both professional and community assignments.</li> </ol>
<p><b>Indicative Contents</b> المحتويات الإرشادية</p>	<p>Indicative content includes the following.</p> <ul style="list-style-type: none"> <li>- <b>Angles, Azimuths, and Bearings Compass Surveying:</b> Introduction, Units of angle measurement, Kinds of horizontal angles, Direction of a line, Azimuths, Bearings, Comparison of azimuths and bearings, Fore and back bearing,</li> </ul>

	<p>Computation of angles, Compass surveying, Principle of compass surveying, Types and uses of compass, Traversing fieldwork (6 hrs.).</p> <ul style="list-style-type: none"> <li>- <b>Theodolite and Total Station Instruments, Angle Observations, Traversing:</b> Uses of Theodolite, Setting up theodolite, Measurement of horizontal angles, Measurement of vertical angles, Types of total station survey, Types of total stations, Traverse computations (6 hrs.).</li> <li>- <b>Area:</b> Computation of Area, Method of measuring Area, Field measurements, Map measurements, Software (6 hrs.).</li> <li>- <b>Contouring:</b> Basic Definitions in Contouring, Contour Interval, Horizontal Equivalent, Characteristics of Contours, Methods of Contouring, Interpolation of Contours, Uses of Contour Maps, Drawing the contour lines (6 hrs.).</li> <li>- <b>Volumes:</b> Introduction, Methods of Computation, from cross –sections, from spot levels, from contours. (6 hrs.)</li> <li>- <b>GPS:</b> Introduction, Functioning of GPS, GPS system components, GPS Signal Transmission, Principle of GPS, GPS Navigation Message, GPS Application, Surveying with GNSS (6 hrs.)</li> <li>- Solving additional problems: (3 hrs.)</li> <li>- 2 monthly exams (6 hrs.)</li> </ul>
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<b>Learning and Teaching Strategies</b> استراتيجيات التعلم والتعليم	
<b>Strategies</b>	<ul style="list-style-type: none"> <li>• Blended learning: include providing interactive tablets or whiteboards with engaging activities and posting classwork online for easier access.</li> <li>• Cooperative learning: include solving questions together, performing skits as a team or working on group presentations.</li> <li>• Formative assessment: include self-evaluation exercises and summarizing a topic in multiple ways.</li> <li>• Behavior management: include establishing a reward system with an interactive chart where students move up or down depending on their performance and behavior in class.</li> </ul>

<b>Student Workload (SWL)</b> الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا			
<b>Structured SWL (h/sem)</b> الحمل الدراسي المنتظم للطالب خلال الفصل	78	<b>Structured SWL (h/w)</b> الحمل الدراسي المنتظم للطالب أسبوعيا	5
<b>Unstructured SWL (h/sem)</b> الحمل الدراسي غير المنتظم للطالب خلال الفصل	47	<b>Unstructured SWL (h/w)</b> الحمل الدراسي غير المنتظم للطالب أسبوعيا	3.8
<b>Total SWL (h/sem)</b> الحمل الدراسي الكلي للطالب خلال الفصل	<b>125</b>		

## Module Evaluation

### تقييم المادة الدراسية

		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome
<b>Formative assessment</b>	<b>Quizzes</b>	2	5% (5)	3 and 11	LO #1, #2 and #10
	<b>Assignments</b>	2	5% (5)	2 and 9	LO #3, #4 and #6, #7
	<b>Projects / Lab.</b>	1	5% (5)	Continuous	All
	<b>Report</b>	2	10% (10)	6 and 13	LO #5, #8 and #10
<b>Summative assessment</b>	<b>Monthly Exam</b>	3hr/2	15% (15)	5 and 12	LO #1 - #7
	<b>Final Exam</b>	3hr	60% (60)	16	All
<b>Total assessment</b>			100% (100 Marks)		

## Delivery Plan (Weekly Syllabus)

### المنهاج الاسبوعي النظري

	Material Covered
<b>Week 1</b>	Angles, Azimuths, and Bearings Compass Surveying
<b>Week 2</b>	Continue: Angles, Azimuths, and Bearings Compass Surveying (i.e., solving problems)
<b>Week 3</b>	Theodolite and Total Station Instruments, Angle Observations, Traversing
<b>Week 4</b>	Continue: Theodolite and Total Station Instruments, Angle Observations, Traversing (i.e., solving problems)
<b>Week 5</b>	Monthly Exam 1
<b>Week 6</b>	Area
<b>Week 7</b>	Continue: Area (i.e., solving problems)
<b>Week 8</b>	Contouring
<b>Week 9</b>	Continue: Contouring (i.e., solving problems)
<b>Week 10</b>	Volumes
<b>Week 11</b>	Continue: Volumes (i.e., solving problems)
<b>Week 12</b>	Monthly Exam 2
<b>Week 13</b>	GPS
<b>Week 14</b>	Continue: GPS
<b>Week 15</b>	Solving additional problems
<b>Week 16</b>	<b>Preparatory week before the final Exam</b>

<b>Delivery Plan (Weekly Lab. Syllabus)</b> المنهاج الاسبوعي للمختبر	
	Material Covered
<b>Week 1 and 2</b>	Lab 1: Introduction to Theodolite Instrument
<b>Week 3 and 4</b>	Lab 2: Applications on Theodolite Instrument
<b>Week 5 and 6</b>	Lab 3: Introduction to Electronic Theodolite Instrument
<b>Week 7 and 8</b>	Lab 4: Applications on Electronic Theodolite Instrument
<b>Week 9 and 10</b>	Lab 5: Introduction to Total Station Instrument
<b>Week 11 and 12</b>	Lab 6: Applications on Total Station Instrument
<b>Week 13 and 14</b>	Lab 7: Reports
<b>Week 15</b>	Lab 8: Exam

<b>Learning and Teaching Resources</b> مصادر التعلم والتدريس		
	Text	Available in the Library?
<b>Required Texts</b>	Elementary Surveying An Introduction to Geomatics Thirteenth Edition CHARLES D. GHILANI, PAUL R. WOLF	Yes
<b>Recommended Texts</b>	Surveying for engineers 5th edition John Uren, Bill Price.	No
<b>Websites</b>		

<b>Grading Scheme</b> مخطط الدرجات				
Group	Grade	التقدير	Marks %	Definition
<b>Success Group (50 - 100)</b>	<b>A - Excellent</b>	امتياز	90 - 100	Outstanding Performance
	<b>B - Very Good</b>	جيد جدا	80 - 89	Above average with some errors
	<b>C - Good</b>	جيد	70 - 79	Sound work with notable errors
	<b>D - Satisfactory</b>	متوسط	60 - 69	Fair but with major shortcomings

	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group (0 – 49)</b>	<b>FX – Fail</b>	راسب (قيد المعالجة)	(45-49)	More work required but credit awarded
	<b>F – Fail</b>	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.