

4. الكتاب المقرر (Text Book)

Main Reference	Geodesy	المرجع الرئيس
Author		المؤلف
Publisher		الناشر
Year		السنة
Edition		الطبعة
Textbook Website		الموقع الالكتروني للمرجع

5. المراجع (وتشمل الكتب والبحوث المنشورة في الدوريات او المواقع الالكترونية المحكمة)

References (books, research published in periodicals or websites)

1-	<p>1. Misra, P., & Enge, P. (2011). Global Positioning System: Signals, Measurements, and Performance (2nd ed.). Ganga-Jamuna Press.</p> <p>2. Hofmann-Wellenhof, B., Lichtenegger, H., & Wasle, E. (2008). GNSS – Global Navigation Satellite Systems: GPS, GLONASS, Galileo, and more. Springer.</p> <p>3. Leick, A., Rapoport, L., & Tatarnikov, D. (2015). GPS Satellite Surveying (4th ed.). Wiley.</p>
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1. مخرجات المساق (Course Intended Learning Outcomes (CILO's))

الوزن Weight	PLO's مخرجات البرنامج	Descriptors الوصفات	مخرجات المساق CLO's	
	PILO1	K1	illustrate methods and tools used in computer based application of spatial data	6
	PILO2	S1	Apply programming in different programming languages	7
	PILO3	S2	Make usage of commercial software packages	7

6. محتوى المساق (Curriculum Design Outline Syllabus)

Week	Topic
1	Introduction to Global Navigation Satellite Systems (GNSS) – Overview of GPS, GLONASS, and Galileo
2	Components and principles of GNSS operation – Satellites, control, and user segments
3	Coordinate systems and reference surfaces used in GNSS surveys
4	Observation planning and field preparation for GPS data collection
5	Static and Rapid Static survey techniques using GPS receivers

6	Stop-and-Go and Kinematic (RTK) surveying methods
7	Field practice using Total Station and GPS devices for control networks
8	Data downloading and initial processing of GNSS observations
9	Transformation of coordinates and adjustment of geodetic networks
10	Processing GNSS data using specialized software
11	Analysis of GPS accuracy and error sources (multipath, atmospheric effects)
12	Project: Establishing and observing a local GNSS network
13	Post-processing of GNSS data and map preparation
14	Final project presentation and course review

7. استراتيجيات التعليم والتعلم وطرق التقويم
(Teaching and learning Strategies and Evaluation Methods)

نوع التقويم/القياس Evaluation /Measurement					أنشطة التعلم Learning Activities	استراتيجيات التدريس Teaching Strategies	مخرجات التعلم Program Intended Learning Outcomes PILOs	ت No.
امتحان Exam	اختبارات قصيرة Quizzes	واجبات Home work	مناقشة Discussion	عروض صفية Presentations				
-	-	-	-	-	Presentations/ prepared & introduced by students Class discussion	Presentations Videos Link with real world problems	An ability to identify formulate and solve complex Engineering problems by applying principles of / engineering, Science, and mathematics.	1
-	-	-	-	-	Presentations/ prepared & introduced by students Class discussion	Presentations Videos Link with real world problems	An ability to apply Engineering design to produce solutions that meet specified needs with considerations of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.	2

-	-	-	-	-	Presentations/ prepared & introduced by students Class discussion	Presentations Videos Link with real world problems	An ability to communicate effectively with arrange of audiences.	3
-	-	-	-	-	Presentations/ prepared & introduced by students Class discussion	Presentations Videos Link with real world problems	An ability to recognize ethical and professional responsibilities in Engineering situations and make informed judgments, which must consider the impact of Engineering solution in global, economic, environmental, and societal contexts.	4
-	-	-	-	-	Presentations/ prepared & introduced by students Class discussion	Presentations Videos Link with real world problems	An ability to function effectively on a team whose members together provide leadership, create a collaborated and inclusive environment, establish goals, plan task, and made objectives.	5
✓	✓	✓	✓	✓	Presentations/ prepared & introduced by students Class discussion	Presentations Videos Link with real world problems	An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use Engineering judgment to draw conclusions.	6
✓	✓	✓	✓	✓	Presentations/ prepared & introduced by students Class discussion	Presentations Videos Link real world problems	An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.	7

8. تقييم الطلبة (Assessment)

توزيع الدرجات لكل أسلوب Distribution of grades	توقيت التقييم Assessment Time	الأساليب المستخدمة Methods Used
20	During Semester	أعمال الفصل Semester Work

30	Midterm Examination Period (Academic Calendar)	Mid Exam امتحان منتصف الفصل
50	Final Examination Period (Academic Calendar)	Final Exam الامتحان النهائي

9. علاقة التقييم بنتائج التعلم Assessment Relationship to learning Outcomes

المجموع Total	CILO						الدرجات Marks	التقييم Assessment	N o.
	6	5	4	3	2	1			
5		-	-	5	-	-	5	Quiz (1) امتحان قصير (1)	1
5		-	-	-	3	2	5	Presentation عرض تقديمي	2
5		-	-	3	2	-	5	Home work (1) واجب (1)	3
5		-	5	-	-	-	5	Home work (2) واجب (2)	4
30		-	10	5	5	10	30	Midterm Exam امتحان منتصف الفصل	5
50	5	10	15	10	5	5	50	Final Exam الامتحان النهائي	6

100	5	10	30	23	15	17	100	المجموع	
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1. مخرجات تعلم البرنامج (PILO's) Program Intended Learning Outcomes (PILO's)
(To be added by the School)

An ability to identify formulate and solve complex Engineering problems by applying principles of / engineering, Science, and mathematics.	K	PILO1
An ability to apply Engineering design to produce solutions that meet specified needs with considerations of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.	C	PILO2
An ability to communicate effectively with arrange of audiences.	S	PILO3
An ability to recognize ethical and professional responsibilities in Engineering situations and make informed judgments, which must consider the impact of Engineering solution in global, economic, environmental, and societal contexts.	C	PILO4
An ability to function effectively on a team whose members together provide leadership, create a collaborated and inclusive environment, establish goals, plan task, and made objectives.	S	PILO5
An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use Engineering judgment to draw conclusions.	S	PILO6
An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.	K	PILO7

2. مخرجات تعلم البرنامج (PEO's) Program Educational Objectives (PEO's)
(To be added by the School)

Have the basic math and science knowledge and technical skills of the Surveying and Geomatics Engineering appropriate to enter careers in the geospatial industry and community.	PEO1
Have appropriate understanding of standards and specifications of the Surveying and Geomatics Engineering's practices.	PEO2
Have an understanding of the professional, ethical, and social issues with commitment to quality and dependability.	PEO3
Acquire the ability to obtain professional licensure and/or certifications in the Surveying and Geomatics Engineering.	PEO4

3. سياسات المساق Course Policies

Should be explained to students at the first meeting:

يجب أن يوضح التالي للطلاب في اللقاء الأول معهم:

12.1 Class Attendance:

- Students must attend all classes of this course.
- Any student with absence of **12.5%** of the classes of any course, will be illegible to sit for the final exam and will be given the university zero (**F**) in this course, and the teacher writes the word (deprived, and if a student submits an official sick report authenticated by university clinic or an accepted excuse by the Dean of his/her faculty, the student will be considered as withdrawn from the course.
- Students are not allowed to come late to classes. Any student coming late will not be allowed to attend the class and he/she will be marked absent.

12.1 المواظبة

- أ. يجب على الطلاب حضور جميع محاضرات المساق.
- ب. أي طالب يتغيب عن 12.5% من محاضرات المساق يُحرم من التقدم للامتحان النهائي ويُمنح صفراً جامعياً (هـ) في هذا المساق، ويدون مدرس المادة كلمة (محروم)، أما إذا قدم الطالب تقريراً مرضياً رسمياً مصدقاً من عيادة جامعية أو عذراً مقبولاً من قبل عميد كليته، فسيتم اعتبار الطالب منسحباً من المساق.
- د. لا يُسمح للطلاب بالحضور متأخراً إلى المحاضرات الدراسية، ولن يُسمح لأي طالب قد قدم متأخراً بحضور المحاضرة وسيتم تمييزه بالغياب.

1.2 Exams: Failure in attending the final exam will result in zero mark unless the student presents an official acceptable excuse to the Dean of his/her faculty who approves an incomplete exam, normally scheduled to be conducted during the first two weeks of the successive semester.

12.2 الامتحانات: يؤدي عدم حضور الامتحان النهائي إلى علامة الصفر ما لم يقدم الطالب عذراً رسمياً مقبولاً لعميد كليته / لها الذي يوافق على امتحان غير مكتمل، ومن المقرر إجراؤه عادةً خلال أول اسبوعين من الفصل الدراسي التالي.

12.3 Assignments & Projects: Assignments and projects should be submitted to the instructor on the due date. Zero mark will be given for late submissions unless the student has an acceptable excuse approved by the instructor of the course.

12.3 الواجبات والمشاريع: يجب تقديم الواجبات والمشاريع إلى المدرس في تاريخ الاستحقاق. سيتم منح علامة الصفر للتقديم المتأخر ما لم يكن لدى الطالب عذر مقبول معتمد من مدرس المساق.

12.4 Exam Attendance/Punctuality:

- A student who is late more than 10 minutes will not be permitted to sit the exam (first, second or mid exams).
- A student who is late more than 30 minutes will not be permitted to sit to final exam, and no student will be permitted to leave the exam center before the elapse of 30 minutes.

12.4 حضور الامتحان / الالتزام بالمواعيد

أ. لن يسمح للطلاب الذي تأخر أكثر من 10 دقائق عن الامتحان بالدخول عليه لأدائه (الأول، الثاني، منتصف الامتحان).

ب. لن يُسمح للطلاب الذي تأخر أكثر من 30 دقيقة عن الاختبار النهائي بالدخول عليه، ولن يُسمح لأي طالب بمغادرة قاعة الامتحان قبل مرور 30 دقيقة.

12.5 Cheating: Cheating is an attempt to gain marks dishonestly, If the student is caught cheating while taking the exam in one of the courses, or it is proven as a result of the

investigation that he attempted to cheat, participated in or attempted to cheat, the following penalties shall be imposed on him collectively:

- a. It is considered a failure in that Course.
- b. Cancel his registration in the residual of the course registered to him in that semester.
- c. Dismissal from the university for one semester following the semester in which he was caught.

12.5 الغش: الغش هو محاولة للحصول على علامات بطريقة غير شرعية وإذا ضبط الطالب في أثناء تأدية الامتحان في إحدى المسابقات متلبساً بالغش أو تثبت نتيجة التحقيق انه حاول الغش أو اشترك أو شرع فيه توقع عليه العقوبات التالية مجتمعة: -

- أ. اعتباره راسباً في تلك المادة.
- ب. إلغاء تسجيله في بقية المواد المسجلة له في ذلك الفصل.
- ت. فصله من الجامعة لمدة فصل دراسي واحد يلي الفصل الذي ضبط فيه.

12.6 Mobiles: Mobile phones should be kept turned off or silent while in class. Usage of mobile phones is not allowed in classes in any form (talking and/or texting).

12.6 الهواتف المحمولة: يجب إبقاء الهواتف المحمولة مغلقة أو صامتة أثناء التواجد في الفصل. لا يُسمح باستخدام الهواتف المحمولة في الفصول بأي شكل (التحدث و / أو الرسائل النصية).