

**Department of Civil Environmental and Geomatics Engineering
Florida Atlantic University
Course Syllabus**

1. Course title/number, number of credit hours	
Plane Surveying - SUR 2101	3 credit hours
2. Course prerequisites, corequisites, and where the course fits in the program of study	
<i>Prerequisites:</i> MAC 2281 or MAC 2311; corequisite SUR 2101L. This course is the first geomatics technical course in the program, and provides the basis for continuing studies in the upper division geomatics courses.	
3. Course logistics	
<i>Term:</i> Spring 2013 This is a classroom lecture course <i>Class location and time:</i> M 7:10-10:00 PM (Lecture) <i>Blackboard Collaborate</i> Examinations will be classroom-based	
4. Instructor contact information	
<i>Instructor's name</i> <i>Office address</i> <i>Office Hours</i> <i>Contact telephone number</i> <i>Email address</i>	Loren J. Gibson, Instructor Boca Raton campus, building EG-36, room 223 Fridays 8:00–10:00 AM; other times by appointment (561) 297-3936 lgibso15@fau.edu
5. TA contact information	
<i>TA's name</i> <i>Office address</i> <i>Office Hours</i> <i>Contact telephone number</i> <i>Email address</i>	
6. Course description	
Surveying theory and practice as applied to plane surveying in these areas: error propagation, linear measurements, angle measurements, area determination, differential and trigonometric leveling, and topographic mapping.	
7. Course objectives/student learning outcomes/program outcomes	
<i>Course objectives</i>	I. Make measurements of horizontal and vertical distances and angles using surveyor's tapes, levels, and total stations. II. Determine the location of accessible and inaccessible points using field measurements and mathematical techniques. III. Record field data accurately and in accordance with professional standards. IV. Understand elementary error theory and correct measurements for known systematic errors. V. Adjust simple differential leveling and traverse surveys. VI. Compute coordinates and areas by coordinate geometry computations. VII. Understand principles of topographic maps, and how basic plane surveying techniques can be applied to create them.
<i>Student learning outcomes</i>	A. Make measurements of horizontal and vertical distances and angles

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<p><i>& relationship to ABET a-k objectives</i></p>	<p>using surveyor's tapes, levels, and total stations (a, b, c, e, k). B. Determine the location of accessible and inaccessible points using field measurements and mathematical techniques (a, b, c, e, k). C. Record field data accurately and in accordance with professional standards (f, g, k). D. Understand elementary error theory and correct measurements for known systematic errors (a, b, c, e, k). E. Adjust simple differential leveling and traverse surveys (a, b, c, e, k). F. Compute coordinates and areas by geometry computations (a, e, k). G. Understand principles of topographic maps, and how basic plane surveying techniques can be applied to create them (a, b, e, g, k).</p>																		
<p><i>Relationship to program outcomes</i></p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 80%;">Outcome 1: An understanding of professional and ethical responsibility.</td> <td style="width: 20%; text-align: center;">Medium</td> </tr> <tr> <td>Outcome 2: A working knowledge of fundamentals, engineering tools, and experimental methodologies.</td> <td style="text-align: center;">High</td> </tr> <tr> <td>Outcome 3: An understanding of the social, economic, and political contexts in which engineers must function.</td> <td style="text-align: center;">Medium</td> </tr> <tr> <td>Outcome 4: An ability to plan and execute an engineering design to meet an identified need.</td> <td style="text-align: center;">Medium</td> </tr> <tr> <td>Outcome 5: An ability to function on multi-disciplinary teams.</td> <td style="text-align: center;">High</td> </tr> <tr> <td>Outcome 6: An ability to communicate effectively.</td> <td style="text-align: center;">High</td> </tr> <tr> <td>Outcome 7: Graduates will have an advanced understanding of the following areas of Geomatics Engineering: a) Surveying, including but not limited to, boundary and land surveying, subdivision and plat creation, control surveys, and construction surveys, b) geographic information systems (GIS), c) photogrammetry and remote sensing d) mapping, to include but not limited, to topographic maps, cadastral maps, and land use maps, e) geodesy, and f) Global Navigation Satellite Positioning Systems (GPS, GLONASS, etc).</td> <td style="text-align: center;">High</td> </tr> <tr> <td>Outcome 8: Graduates will have a conceptual understanding of the role of Geomatics Engineering in infrastructure planning and sustainability, including safety, risk assessment, environmental issues, and hazard mitigation.</td> <td style="text-align: center;">Medium</td> </tr> <tr> <td>Outcome 9: Graduates will be successful in finding professional employment, attaining professional licensure, and/or pursuing further academic studies.</td> <td style="text-align: center;">High</td> </tr> </table>	Outcome 1: An understanding of professional and ethical responsibility.	Medium	Outcome 2: A working knowledge of fundamentals, engineering tools, and experimental methodologies.	High	Outcome 3: An understanding of the social, economic, and political contexts in which engineers must function.	Medium	Outcome 4: An ability to plan and execute an engineering design to meet an identified need.	Medium	Outcome 5: An ability to function on multi-disciplinary teams.	High	Outcome 6: An ability to communicate effectively.	High	Outcome 7: Graduates will have an advanced understanding of the following areas of Geomatics Engineering: a) Surveying, including but not limited to, boundary and land surveying, subdivision and plat creation, control surveys, and construction surveys, b) geographic information systems (GIS), c) photogrammetry and remote sensing d) mapping, to include but not limited, to topographic maps, cadastral maps, and land use maps, e) geodesy, and f) Global Navigation Satellite Positioning Systems (GPS, GLONASS, etc).	High	Outcome 8: Graduates will have a conceptual understanding of the role of Geomatics Engineering in infrastructure planning and sustainability, including safety, risk assessment, environmental issues, and hazard mitigation.	Medium	Outcome 9: Graduates will be successful in finding professional employment, attaining professional licensure, and/or pursuing further academic studies.	High
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8. Course evaluation method

Laboratories: Approx. 0%	<i>Note:</i> The minimum grade required to pass the course is C.
Homework assignments: Approx. 50%	
Examinations: Approx. 50%	

9. Course grading scale

See the supplementary *Course Policies Document*.

10. Policy on makeup tests, late work, and incompletes

Makeup tests are given only if there is solid evidence of a medical or otherwise serious emergency that prevented the student of participating in the exam. Makeup exam should be administered and proctored by department personnel unless there are other pre-approved arrangements.
Late work is not acceptable.

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Incomplete grades are against the policy of the department. Unless there is solid evidence of medical or otherwise serious emergency situation incomplete grades will not be given.

11. Special course requirements

This course will probably require travel to one of the FAU campuses for examinations. Students must check their official FAU electronic mail accounts and the official course web page (Blackboard) on a daily basis for announcements and other correspondence. Students are responsible for obtaining use of suitable computer hardware, software, and Internet connection in order to participate in the *Blackboard Collaborate* lecture classes.

12. Classroom etiquette policy

Attendance during the Blackboard Collaborate sessions is mandatory. Students are required to fully participate in the live sessions, and not merely log in to the classroom session and physically leave the computer terminal.

13. Disability policy statement

In compliance with the Americans with Disabilities Act (ADA), students who require special accommodations due to a disability to properly execute coursework must register with the Office for Students with Disabilities (OSD) located in Boca Raton campus, SU 133 (561) 297-3880 and follow all OSD procedures.

14. Honor code policy

Students at Florida Atlantic University are expected to maintain the highest ethical standards. Academic dishonesty is considered a serious breach of these ethical standards, because it interferes with the university mission to provide a high quality education in which no student enjoys unfair advantage over any other. Academic dishonesty is also destructive of the university community, which is grounded in a system of mutual trust and place high value on personal integrity and individual responsibility. Harsh penalties are associated with academic dishonesty. See University Regulation 4.001 at http://www.fau.edu/regulations/chapter4/4.001_Code_of_Academic_Integrity.pdf

15. Required texts/reading

1. Official *Course Policies* document, available on the official course web page (Blackboard).
2. Ghilani & Wolf, *Elementary Surveying, An Introduction to Geomatics*, 12th ed.

16. Supplementary/recommended readings

See the official course web site on Blackboard.

17. Course topical outline, including tentative dates for exams/quizzes, papers, completion of reading, and other exercises

Lectures	
<i>Date</i>	<i>Topic</i>
Mon Jan 07	Introduction; introduction to geomatics profession; units of measure.
Mon Jan 14	Field note taking; elementary error theory.
Mon Jan 21**	**M.L. King Holiday**
Mon Jan 28	Elevation determination.
Mon Feb 04***	***Last day for withdrawal/drop receiving a 25% tuition adjustment***
Mon Feb 04	Differential leveling and adjustment.
Mon Feb 11	Trigonometric leveling.
Mon Feb 18	Distance measurement; taping.
Sat Feb 23*	*Mid-term examination*
Mon Feb 25	Electronic Distance Measuring Instruments

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Fri Mar 01 ^{***}	***Last day for withdrawal/drop without receiving an "F"***
Mon Mar 04 ^{**}	**Spring Break**
Mon Mar 11	Basic surveying geometry.
Mon Mar 18	Coordinate systems for horizontal positions.
Mon Mar 25	Measurement of angle and distance with total station.
Mon Apr 01	Traverse adjustment.
Mon Apr 08	Coordinate geometry.
Mon Apr 15	Area computation; horizontal circular curves.
Mon Apr 22	Topographic survey maps.
Mon Apr 29 [*]	*Final Exam*