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

| **1. Course title/number, number of credit hours** | |
|---|---|
| Plane Surveying Lab - SUR 2101L | 1 credit hour |

**2. Course prerequisites, corequisites, and where the course fits in the program of study**

*Prerequisites*: MAC 2281 or MAC 2311; corequisite SUR 2101.
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**

*Term*: Spring 2013
This is a classroom laboratory course
*Class location and time*: S 8:00 AM-5:00 PM (Lab) HC 111 (Jupiter campus)
Examinations will be classroom-based

**4. Instructor contact information**

| | |
|---|---|
| *Instructor's name* | Loren J. Gibson, Instructor |
| *Office address* | Boca Raton campus, building EG-36, room 223 |
| *Office Hours* | Fridays 8:00–10:00 AM; other times by appointment |
| *Contact telephone number* | |
| *Email address* | (561) 297-3936<br>lgibso15@fau.edu |

**5. TA contact information**

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|---|---|
| *TA's name* | |
| *Office address* | |
| *Office Hours* | |
| *Contact telephone number* | |
| *Email address* | |

**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**

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|---|---|
| *Course objectives* | I. Make measurements of horizontal and vertical distances and angles using surveyor's tapes, levels, and total stations.<br>II. Determine the location of accessible and inaccessible points using field measurements and mathematical techniques.<br>III. Record field data accurately and in accordance with professional standards.<br>IV. Understand elementary error theory and correct measurements for known systematic errors.<br>V. Adjust simple differential leveling and traverse surveys.<br>VI. Compute coordinates and areas by coordinate geometry computations.<br>*VII.* Understand principles of topographic maps, and how basic plane surveying techniques can be applied to create them. |
| *Student learning outcomes* | A. Make measurements of horizontal and vertical distances and angles |

| | | |
|---|---|---|
| *& relationship to ABET a-k objectives* | using surveyor's tapes, levels, and total stations (a, b, c, e, k).<br>B. Determine the location of accessible and inaccessible points using field measurements and mathematical techniques (a, b, c, e, k).<br>C. Record field data accurately and in accordance with professional standards (f, g, k).<br>D. Understand elementary error theory and correct measurements for known systematic errors (a, b, c, e, k).<br>E. Adjust simple differential leveling and traverse surveys (a, b, c, e, k).<br>F. Compute coordinates and areas by geometry computations (a, e, k).<br>*G.* Understand principles of topographic maps, and how basic plane surveying techniques can be applied to create them (a, b, e, g, k). | |
| *Relationship to program outcomes* | **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 |

## 8. Course evaluation method

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|---|---|
| Laboratories: Approx. 100%<br>Homework assignments: Approx. 0%<br>Examinations: Approx. 0% | *Note*: The minimum grade required to pass the course is C. |

## 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.

*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 require travel to one of the FAU campuses for field laboratories on up to seven Saturdays during the semester. 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 is mandatory. The laboratory manual provides other guidance.

**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 (continued)**

Laboratories

| *Date* | *Topic* |
|---|---|
| Feb 09 | Initial job site inspection; set survey stations; pacing and horizontal taping. |
| Feb 16 | Introduction to automatic level; C test, differential leveling and adjustment. |
| Feb 23 | Introduction to total station; angles by repetition; closing the horizon exercise; vertical circle index test. |
| Mar 16 | Traversing. |
| Mar 30 | Traversing. |
| Apr 06 | Make-up field work lab (instructor discretion) |
| Apr 13 | Traverse adjustment; introduction to computer usage (adjustments, CAD). |