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| **1. Course title/number, number of credit hours** | | | |
| Geomatics Lab (SUR 3103L) | | | 1 credit hour |
| **2. Course prerequisites, corequisites, and where the course fits in the program of study** | | | |
| Prerequisites: *MAC 1114 with a minimum grade of "C" or permission of instructor*  Co-requisite: Geomatics SUR 3103 | | | |
| **3. Course logistics** | | | |
| *Semester*: Summer 2018, Classroom FL 404, Tuesdays 4:00 pm- 7:10 pm | | | |
| **4. Instructor contact information**  Sudhagar Nagarajan, Ph. D.,  Engineering West, Room # 222  [snagarajan@fau.edu](mailto:snagarajan@fau.edu)  phone: 561-297-3104  Office hours: Tuesdays 2:00 pm – 4:00 pm | | | |
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| **5. TA contact information** | | | |
| *TA’s name*  *Office address*  *Email address* |  | | |
| **6. Course description** | | | |
| Theory and application of methods used in geospatial data acquisition, such as distance, direction and angle measurements, traverse computation, trigonometric leveling and height determination, topographic surveying, horizontal/vertical curves, terrestrial positioning with GPS.  Labs synchronized with the lectures. | | | |
| **7. Course objectives/student learning outcomes/program outcomes** | | | | |
| *Course objectives* | | The course provides an overview of fundamentals of graphical and measurement analysis, basic surveying concepts, and introduction to global positioning system. | | |
| *Student learning outcomes*  *& relationship to ABET a-k objectives* | | 1. Understanding distance and angle measurements (a, b, d, e, g, k)  2. Running a leveling traverse (a, b, d, e, g, k)  3. Performing a topographic survey (a, b, d, e, g, k)  4. Designing and laying out a horizontal curve, vertical curve and volume computations (a, b, d, e, g, k)  5. Understanding the basics of GPS (a, e) | | |
| *Relationship to program outcomes* | | **Outcome 1**: An understanding of professional and ethical responsibility (High)  **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 (Medium)  **Outcome 6**: An ability to communicate effectively (Medium)  **Outcome 7**: Graduates will have proficiency in the following areas of civil engineering: (i) structural engineering, (ii) transportation engineering, (iii) geotechnical engineering, (iv) water resources, and (v) environmental engineering (High)  **Outcome 8**: Graduates will have an adequate appreciation for the role of civil engineering in infrastructure planning and sustainability including safety, risk assessment, and hazard mitigation (High)  **Outcome 9**: Graduates will be successful in finding professional employment and/or pursuing further academic studies (High) | | |
| **8. Course evaluation method** | | | | |
| Lab reports: 30%  Homeworks: 35%  Class Quiz: 15%  Final exam: 20%  \* As can be seen with the contribution of lab reports to overall grade, these reports will be the integral part of this course. As such, reports will include all the measurements, methods, analysis, results, drawings etc. for all the scheduled lab activities.  Note: The minimum grade required to pass the course is C. | | | | |
| **9. Course grading scale** | | | | |
| To succeed in this class:  Fully completed field book must be handed in.  Fully completed lab reports (all of them) must be handed in.  Fully completed homeworks must be handed in.  Quizzes must be completed  Final exams must be taken. | | | | |
| **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.  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** | | | | |
| Unless there is a legitimate reason, full attendance to the labs is required. For this purpose an attendee list will be kept. To claim presence you must be in lab from the beginning to the end. Absence from labs must be documented. Otherwise, you will lose the grade for that particular week.  Lab report for each activity must be finalized and handed in on the due date. These must be handed in by the beginning of the class time. Late submissions will NOT be graded. | | | | |
| **12. Classroom etiquette policy** | | | | |
| University policy requires that in order to enhance and maintain a productive atmosphere for education, personal communication devices, such as cellular phones and laptops, are to be disabled in class sessions. | | | | |
| **13. Disability policy statement** | | | | |
| In compliance with the Americans with Disabilities Act Amendments Act (ADAAA), students who require reasonable accommodations due to a disability to properly execute coursework must register with Student Accessibility Services (SAS)—in Boca Raton, SU 133 (561-297-3880); in Davie, LA 131 (954-236-1222); or in Jupiter, SR 110 (561-799-8585) —and follow all SAS 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 www.fau.edu/regulations/chapter4/4.001\_Honor\_Code.pdf. | | | | |
| **15. Required texts/reading** | | | | |
| Charles D. Ghilani and Paul R. Wolf, (2017). “Elementary Surveying: An Introduction to Geomatics”, 15th Edition, Pearson Prentice Hall, New Jersey. | | | | |
| **16. Supplementary/recommended readings** | | | | |
| Kavanagh, B. F., (2006). “Surveying: Principles and Applications”, 7th edition, Pearson Prentice Hall, New Jersey. | | | | |
| **17. Course topical outline, including dates for exams/quizzes, papers, completion of reading** | | | | |
| Week 1: Introduction, What is Surveying/Geomatics?  Week 2: Distance measurements  Week 3: Lab 1: Initial job site inspection; set survey stations; pacing and horizontal taping.  Week 4: Angle measurements  Week 5: Traverse computations  Week 6: Lab 2: Traverse field measurements  Week 7: Leveling, Trigonometric leveling  Week 8: Horizontal and vertical curve computations  Week 9: Lab 3: Leveling field measurements  Week 10: Satellite positioning, Lab 4: Trigonometric Surveying, Lab 5 : GPS survey: Topographic surveying  Week 11: Area and Volume Computations, Course and FE review  Week 12: Final Exam  *Lab Exercises:*  05/30/2017: Lab 1: Initial job site inspection; set survey stations, pacing and horizontal taping.  06/20/2017: Lab 2: Traverse field measurements  07/11/2017: Lab 3: Leveling field measurements  07/18/2017 Lab 4: Trigonometric leveling  07/18/2017 Lab 5: GPS survey: Topographic surveying | | | | |