SET 200 A - 102
INTRODUCTION TO GEOMATICS LAB

Lab: Saturday 9:00 – 2:50 PM, Room: Student Mall PC39

Instructor: Angel Todosov PLS, MBA, PMP, Cell: 609-235-7756 Email: at387@njit.edu
Office Hours: By appointment.

Corequisites: SET 200
Course Structure: (0-3-1) (Lecture hr/wk - lab hr/wk - course credits)

Course Description:

This course is to support the SET 200 Introduction to Geomatics course. The theory and methodology presented in SET 200 will be brought to practice in this lab.

An introduction to site surveying prep-work will include the establishment of surveying control points, and project site's reconnaissance and sketching. Traditional surveying instruments (Level, Total Station, GNSS units, Multi Station, …) and methods (differential & trigonometric leveling, GNSS, 3D scanning, …) will be explained and applied for a topographic survey of assigned project area. State-of-the-art surveying equipment and the most efficient workflows will also be applied for survey data collection and analysis. Appropriate CADD software will be utilized in preparation of a topographic map as base-map for Civil/Construction Engineering design work.

Course Objectives:

At the completion of this course, students will be able to:

1. Identify the equipment surveyor uses for performing different survey activities.
2. Characterize and classify survey data points collected and used for field conditions depiction.
3. Demonstrate the use of modern tools to perform survey data analysis and mapping.
4. Effectively interact with other team members to analyze problems and complete assignments.
5. Write an effective laboratory/survey report/paper.
6. Present to a client/class technical information in a professional and concise manner.
7. Download and upload files in Canvas and utilize other aspects of this learning application.

Course Policies:

- **Student Behavior**
  - Your safety is priority number one. Please be aware of your surroundings in the field.
  - If you finish an exercise early, you must show your work before you leave class.
  - You should participate in the Field Exercise. Use this opportunity to have hands on the equipment.
  - Be careful in handling the equipment. Any damage or malfunction must be reported immediately.
- **Grade distribution & Scale converting numerical to letter grades**

Field Exercise FE01-FE05	50%		A	90-100
Participation	5%		B+	85-89.99
Topographic Map	10%		B	80-84.99
Report	25%		C+	70-79.99
Presentation	10%		C	60-69.99
Total	100%		D	50-59.99

  - Grades will be maintained in the Canvas course shell.
- **Labs and Assignments**

- Students are expected to work independently. **Offering** and **accepting** solutions from others is an act of **plagiarism**, which is a serious offense, and **all parties involved will be penalized according to the Academic Integrity Policy**. Discussion amongst students is encouraged, but when in doubt, ask the instructor.
- **No late assignments will be accepted under any circumstances**.

• **Attendance and Absences**
- Attendance is expected and will be taken at each class. You can miss **1** class during the semester.
- Students are responsible for all missed work, regardless of the reason for their absence. It is also the absentee's responsibility to get all missing filed notes/data or materials.

• **Generative AI use**

Student use of artificial intelligence (AI) is permitted in this course for certain assignments and activities. It is not permitted to be used in the assignments noted by the instructor, as doing so would undermine student learning and achievement of course learning outcomes. Additionally, if and when students use AI in this course, the AI must be cited as is shown within the NJIT Library AI citation page for AI. If you have any questions or concerns about AI technology use in this class, please reach out to your instructor prior to submitting any assignments.

Academic Integrity Policy:

Academic Integrity is the cornerstone of higher education and is central to the ideals of this course and the university. Cheating is strictly prohibited and devalues the degree that you are working on. As a member of the NJIT community, it is your responsibility to protect your educational investment by knowing and following the academic code of integrity policy that is found at:

https://www5.njit.edu/policies/sites/policies/files/academic-integrity-code.pdf

Please note that it is my professional obligation and responsibility to report any academic misconduct to the Dean of Students Office. ***Any student found in violation of the code by cheating, plagiarizing or using any online software inappropriately will result in disciplinary action. This may include a failing grade of F, and/or suspension of dismissal from the university.*** *If you have any questions about the code of Academic Integrity, please contact the Dean of Students Office at* dos@njit.edu

Course Modification Policy:

The Course Outline may be modified at the discretion of the instructor or in the event of extenuating circumstances. On rainy days, appropriate indoor exercises will be conducted.

Tentative Lab Schedule:

ID	Week	Date	Exercise
FE 01	1 & 2	1/25	Pacing, Taping, Terrain reconnaissance, Survey control recovery/setup & recording, Project site's sketching (one overall & two details)
FE 02	3 & 4	2/8	Differential Leveling: data collection & elevation calculations
FE 03	5 & 6	2/22	Total Station (TS) familiarization & Traversing
FE 04	7 & 8	3/8	Global Navigation Satellite System (GNSS) familiarization & observations
FE 05	9 & 10	3/29	Topographic Survey (TS & GNSS)
CLE 01	11 & 12	4/12	Topographic Survey (Scanning), data analysis - Infinity, mapping - Civil 3D
CLE 02	13 & 14	4/26	Completion of a Topographic Map, Final Report, & Presentation

All exercise instructions (posted on Canvas) are to be read before the lab session in which they are performed.