Spring 1-1-2020

SET 440-102: Land Development

Laramie Potts

School of Applied Engineering and Technology

SET440 – Land Development

Instructor: Dr. Laramie Potts Contact:email lpotts@njit.edu

Office Hours in 2510 GITC: Monday 4:00 – 5:30 pm

Classroom: CKB 212 (Thursday: 6:00 pm am – 8:55 pm)

Course Description:

Understanding the process of development of land through the study of land use law, federal, state and municipal land use regulations, federal and state regulations regarding environmental issues and the administrative and statutory laws governing the preparation of land surveys; impart the ability to prepare a land survey from initial contact and the proposal phase to preliminary and final plan approval through a class project designed to cover all of these phases.

COURSE STRUCTURE (2-3-3) (lecture hr/wk - lab hr/wk – course credits)

PREREQUISITE(S) SET 207 and CE 321 or equivalent.

REQUIRED TEXT BOOKS

A. Land Development Handbook: *Planning, Engineering and Surveying*, Drewberry & Davis, 3rd Edition of later, McGraw-Hill, New York. ISBN 978-0-07-149437-3
B. Map Filing Law (available online via Canvas)
C. Municipal Land Use Law (available on-line: via Canvas)
D. "Residential Site Improvement Standards" (available on-line via Canvas)

SUPPLEMENTAL TEXTS

Supplemental Text:

E. ASSHTO A Policy on Geometric Design of Highways and Streets 2002 Edition
F. Introduction to Hydraulics & Hydrology 2nd Edition by John Gribbin, P.E., Delmar
G. Instructor Notes

COURSE OBJECTIVES

By the end of the course students should be able to:

1. Understand the fundamental concepts of land development and how it relates to the surveyor and civil engineer
2. Utilize modern industry-standard tools for planning, zoning design and plan preparation
3. Demonstrate understanding of plan submission, Review and approval transformation, analysis and presentation.
4. Present orally technical information in a professional and concise manner.

CLASS TOPICS Introduction to Land development, Planning and Zoning, Ordinances,

Real property Law, Boundary and Topographic Surveys. Environmental Considerations, Development Patterns and Principles Environmental and Natural Resources, Floodplain Studies, Street Design, Storm Drainage Design, Stormwater Management Design, Plan Submission, Review and Approval Process, Permitting and Construction Documents, Construction Stakeout and Construction Services .

ACADEMIC INTEGRITY

NJIT has a zero-tolerance policy regarding cheating of any kind and student behavior that is disruptive to a learning environment. Any incidents will be immediately reported to the Dean of Students. The Dean of Students will determine the degree of deviation of the conduct and the disciplinary action warranted. For more information on the honor code, go to http://www.njit.edu/academics/honorcode.php

STUDENT BEHAVIOR

- No eating or drinking is allowed at the lectures, recitations, workshops, and laboratories.
- Cellular/smart phones must be turned off during the class hours – if you are expecting an emergency call, leave it on vibrate.
- No headphones can be worn in class.
- Unless the professor allows the use during lecture, laptops should be closed during lecture.
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MODIFICATION TO COURSE

The Course Outline may be modified at the discretion of the instructor or in the event of extenuating circumstances. Students will be notified in class of any changes to the Course outline.

COURSE COORDINATED BY

Dr. Laramie V. Potts

CLASS HOURS

Thurday – lecture/lab	6:00PM – 9:05 PM	CKB 212

GRADING POLICY

Quizes	50%
Board Meeting Review	5%
Project	45 %

Quizzes —Five online quizzes are taken on chapter readings. The student will be held responsible for material covered in lectures and the reading assignment.

Planning Board Meeting Review - All students will be required to attend a Planning Board/Board of Adjustment meeting and file a brief report of their observations.

COURSE OUTLINE: 2020

Week	Week of	Reading	Activity	Topics
1.	**Jan-20**	***A***: ch**1** ***G*: 1**		**Introduction** **Overview: The Land Development Process**
FEASIBILITY				
2.	**Jan-27**	***A*: 5** & **7**	In-class Exercise	**Feasibility** Planning and Zoning, Parcel Title and Description
3.	Feb-03	***A*: 3, 4, 8**	**Quiz One (Covers weeks 1-2)**	**Feasibility (cont)** Policy, Regulations, Ordinances, Regulations, Environmental Considerations RFPs, Design Patterns
CONCEPTUAL DESIGN				
4.	Feb-10	***A*: 6, 8, 12, App. A**		**Conceptual Design** Review of Real Property Law Geodetic Control Surveys.
5.	Feb-17	***A*: 13, 14**	**Quiz Two (Covers weeks 3-4)**	**Site Visit/Surveys** Boundary Surveys, Topographic Surveys Survey products
6.	**Feb-24**	***A*: 14, 19** ***G*: 2**	In-class exercises	**Site Analytics** Topographic Analysis Hydologic Analysis
7.	Mar-02	***A*: 18**	**Quiz Three (Covers weeks 5-7)**	**Site Conditions** Environmental and Natural Resources Floodplain Studies
8.	**Mar-09**	***A*: 19** ***G*: 3**	In class exercises	**Preliminary Site Design** Development Patterns Design Principles
Spring Break				
9.	**Mar-16**	***A*: 20, 21**		Street Pattern Design, Storm Drainage Design
10.	**Mar-23**	***A*: 25, 26** ***G*: 4**	In-class exercises	Stormwater Management Design, Elements of Erosion Contol Water Distribution Dry Utilities Design,
APPROVALS & CONSTRUCTION				
11.	Mar-30	***G*: 5**	**Quiz Four (Covers weeks 8-10)**	Title Block, Notes Design Packet Preparation Schedule
12.	Apr-06	A:. 30		Plan Submission, Review and Approval Process

13.	Apr-13	***A*: 32**	**Submit: Summary Report of Planning Board Meeting**	Permitting and Construction Document
14.	Apr-20	***G*: 6**	**Project submission Online**	Construction Stakeout Variances
15.	**Apr-27**		**In class Presentations**	**Project Presentations**
Week of May-04 **Quiz Five** **(Covers weeks 11-14)**				

Additional Information:

1. ***Materials Required*** -- Calculator, Civil3D or Carslon CAD software.

2 ***Student Activities*** The main online activities include quizzes which will be based on reading assignments. Late submission will not be accepted. Handout problems may be assigned or substituted. Assignments are administered and submitted via CANVAS (the online Learning Management System (LMS). Due date are posted in the syllabus and on CANVAS.

Each student will be assigned a **term project** on land developemeent project in NJ. The final project deliverables (a-f) will be one packet plotted 36" x 48" sheets. The **project presentation** will an 6-minute presentation followed by 2 minute Q/A

3. Unexcused ***absences*** from more the repsentation will result in a grade of F.

4. The NJIT ***Honor Code*** will be upheld, any violations will be brought to the immediate attention of the Dean of Students.

5. The students will be informed of any ***changes to syllabus*** at least one week in advance.

6. To schedule consultation ***outside office hours***, send request via email

7. **Grading**

Score Assignment
D = 51-57
C = 57.1 - 63.0
C+ = 63.1 - 70.0
B = 70.1 - 77.0
B+ = 77.1 - 85.0
A > 85

CLASS PROJECT

Phase One: Project feasibility. Site evaluation for subdivision to include best profitable land use conversion project based on parcel contaxt.

Phase Two: Prepapre Boundary survey plat and Topograpgraphic Survey map (data provided) and the Land Parcel (Legal) Description. Prepare Bubble Diagram of the preferred project design

Phase Three: Prepare Conceptual Design using Zoning Ordinances and State Laws.

Phase Four: Subdivision design; lot calculations, slopes, wetlands, street design, storm water design, location of storm water management basin and earthwork.

Phase Five: Prepare final plat in accordance with "Map Filing Law".

Phase Six: Presentation

CLASS PROJECT REQUIREMENTS

Project Deliverable in a final "Packet" includes:

a) Concept (Bubble Diagram) Plan and Project Feasibilty Report
b) Separate Boundary and Parcel Designtion
c) Topographic Maps showing Slope Analysis
d) Development/ Subdivision Design – The Site Plan
    a. Parcels
    b. Streets
    c. Parcels
    d. Setbacks
    e. Easements/ROW
e) Grading Plan (showing existing and design surfaces)
f) Drainage and Utility Plan