Spring 1-1-2020

SET 440-102: Land Development

Laramie Potts

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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 Textbooks
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
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,

**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](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.

**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**
- Quizzes 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.
<table>
<thead>
<tr>
<th>Week</th>
<th>Week of</th>
<th>Reading</th>
<th>Activity</th>
<th>Topics</th>
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</thead>
<tbody>
<tr>
<td>1.</td>
<td>Jan-20</td>
<td>A: ch1</td>
<td></td>
<td><strong>Introduction</strong></td>
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<tr>
<td></td>
<td></td>
<td>G: 1</td>
<td></td>
<td><strong>Overview: The Land Development Process</strong></td>
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<td></td>
<td></td>
<td><strong>Feasibility</strong></td>
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<td>2.</td>
<td>Jan-27</td>
<td>A: 5 &amp; 7</td>
<td>In-class Exercise</td>
<td><strong>Feasibility</strong></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Planning and Zoning, Parcel Title and Description</td>
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<tr>
<td>3.</td>
<td>Feb-03</td>
<td>A: 3, 4, 8</td>
<td><strong>Quiz One</strong></td>
<td><strong>Feasibility (cont)</strong></td>
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<td></td>
<td></td>
<td></td>
<td>(Covers weeks 1-2)</td>
<td>Policy, Regulations, Ordinances, Regulations, Environmental Considerations, RFPs, Design Patterns</td>
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<td></td>
<td></td>
<td><strong>Conceptual Design</strong></td>
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<td>4.</td>
<td>Feb-10</td>
<td>A: 6, 8, 12, App. A</td>
<td></td>
<td><strong>Conceptual Design</strong></td>
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<td>Review of Real Property Law, Geodetic Control Surveys</td>
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<td>5.</td>
<td>Feb-17</td>
<td>A: 13, 14</td>
<td><strong>Quiz Two</strong></td>
<td><strong>Site Visit/Surveys</strong></td>
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<td></td>
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<td></td>
<td>(Covers weeks 3-4)</td>
<td>Boundary Surveys, Topographic Surveys, Survey products</td>
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<td>6.</td>
<td>Feb-24</td>
<td>A: 14, 19</td>
<td>In-class exercises</td>
<td><strong>Site Analytics</strong></td>
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<tr>
<td></td>
<td></td>
<td>G: 2</td>
<td></td>
<td>Topographic Analysis, Hydologic Analysis</td>
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<tr>
<td>7.</td>
<td>Mar-02</td>
<td>A: 18</td>
<td><strong>Quiz Three</strong></td>
<td><strong>Site Conditions</strong></td>
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<td></td>
<td>(Covers weeks 5-7)</td>
<td>Environmental and Natural Resources, Floodplain Studies</td>
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<td>8.</td>
<td>Mar-09</td>
<td>A: 19</td>
<td>In class exercises</td>
<td><strong>Preliminary Site Design</strong></td>
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<td></td>
<td></td>
<td>G: 3</td>
<td></td>
<td>Development Patterns, Design Principles</td>
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<td><strong>Spring Break</strong></td>
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<td>9.</td>
<td>Mar-16</td>
<td>A: 20, 21</td>
<td></td>
<td><strong>Approvals &amp; Construction</strong></td>
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<td>Street Pattern Design, Storm Drainage Design</td>
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<td>10.</td>
<td>Mar-23</td>
<td>A: 25, 26</td>
<td>In-class exercises</td>
<td>Stormwater Management Design, Elements of Erosion Control, Water Distribution, Dry Utilities Design,</td>
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<td>G: 4</td>
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<td><strong>Quiz Four</strong></td>
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<td>(Covers weeks 8-10)</td>
<td><strong>Title Block, Notes</strong></td>
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<td>Design Packet Preparation, Schedule</td>
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<td>11.</td>
<td>Mar-30</td>
<td>G: 5</td>
<td></td>
<td><strong>Plan Submission, Review and Approval Process</strong></td>
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<tr>
<td>12.</td>
<td>Apr-06</td>
<td>A: 30</td>
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<td><strong>Approval &amp; Construction</strong></td>
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<td>Title Block, Notes, Design Packet Preparation, Schedule</td>
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</tbody>
</table>
15. Apr-27  | In class Presentations | Project Presentations

Additional Information:

1. **Materials Required** -- Calculator, Civil3D or Carlsion 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 development 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 representation 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**

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<th>Score Assignment</th>
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<tbody>
<tr>
<td>D</td>
<td>51-57</td>
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<tr>
<td>C</td>
<td>57.1 - 63.0</td>
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<tr>
<td>C+</td>
<td>63.1 - 70.0</td>
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<tr>
<td>B</td>
<td>70.1 - 77.0</td>
</tr>
<tr>
<td>B+</td>
<td>77.1 - 85.0</td>
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<tr>
<td>A</td>
<td>&gt; 85</td>
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</tbody>
</table>
CLASS PROJECT

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

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


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 Feasibility Report
   b) Separate Boundary and Parcel Description
   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