

## Master Syllabus

### CAT 2301 - Land Development Design in Civil 3D

**Division:** Science, Mathematics and Engineering

**Department:** Civil Engineering Technology

**Credit Hour Total:** 3.0

**Lecture Hrs:** 2.0 **Lab Hrs:** 2.0

**Prerequisite(s):** CAT 1301AND CAT 1401AND CAT 1501

**Date Revised:** March 2017

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#### Course Description:

Application of civil engineering technology principles to land development. Design elements include boundary and topographic surveying, remote sensing, roadway, hydrology and quality estimates within Computer Aided Design software. Emphasis is placed upon federal, state and local regulations related to the development of real property. Two classroom, two lab hours per week.

#### General Education Outcomes:

- ▣ Critical Thinking/Problem Solving Competency
- ▣ Computer Literacy Competency

#### Course Outcomes:

##### Transportation Design

Demonstrate the basic principles and elements of roadway system design including horizontal/vertical alignments, pavement design, storm water drainage and construction.

**Assessment Method:** Portfolios  
**Performance Criteria:**

Score of 70% or better.

##### Stormwater Management

Utilize Computer Aided Design software to calculate stormwater runoff, generate pipe networks, develop grading plans and design sediment and erosion control measures.

**Assessment Method:** Locally developed exams  
**Performance Criteria:**

Score of 70% or better.

**Assessment Method:** Portfolios  
**Performance Criteria:**

Score of 70% or better.

##### Construction Documents

Utilize Computer Aided Design software to generate plan/profile sheet sets, general notes, detail drawings and reports for project cost estimating.

**Assessment Method:** Portfolios  
**Performance Criteria:**

Score of 70% or better.

##### Software Interoperability

Recognize the capabilities of various software packages to collect, organize, process and analyze spatially referenced datasets.

**Assessment Method:** Portfolios  
**Performance Criteria:**

Score of 70% or better.

#### Outline:

Software functionality  
Geodetic datums  
Open-source datasets  
Topographic models  
Regulatory requirements  
Roadway design  
Parcel creation  
Generation of plans

