

## Master Syllabus

### CAT 2531 - Advanced Surveying & Mapping

**Division:** Science, Mathematics and Engineering

**Department:** Civil Engineering Technology

**Credit Hour Total:** 3.0

**Lecture Hrs:** 2.0 **Lab Hrs:** 3.0

**Prerequisite(s):** CAT 1501 AND MAT 1290 OR MAT 1470 OR MAT 2270 OR MAT 1580

**Date Revised:** December 2016

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### Course Description:

Utilization of surveying equipment and Computer Aided Drafting (CAD) software to perform field data collection and produce civil engineering drawings. Two classroom, three lab hours per week.

### General Education Outcomes:

- Critical Thinking/Problem Solving Competency

### Course Outcomes:

#### Field Data Collection

Perform field data collection to capture positions of natural and cultural features.

**Assessment Method:** Behavioral observations

**Performance Criteria:**

70% or higher based on performance checklist

**Assessment Method:** Locally developed exams

**Performance Criteria:**

70% or higher correct responses on written exams

#### Highway Curves

Compute horizontal and vertical curves used in highway design.

**Assessment Method:** Locally developed exams

**Performance Criteria:**

70% or higher correct responses on written exams

#### Base Drawings

Utilize CAD software for surveying applications and base drawings.

**Assessment Method:** Locally developed exams

**Performance Criteria:**

70% or higher correct responses on written exams

**Assessment Method:** Portfolios

**Performance Criteria:**

Score at least a "7" out of 10 based on a performance rubric

#### Horizontal and Vertical Control Networks

Utilize surveying equipment to establish and adjust horizontal and vertical control networks.

**Assessment Method:** Behavioral observations

**Performance Criteria:**

70% or higher based on performance checklist

**Assessment Method:** Locally developed exams

**Performance Criteria:**

70% or higher correct responses on written exams

### Outline:

Vertical control network

Horizontal control network

Data collection

Preliminary mapping

Route geometry

Design drawings