

## Master Syllabus

### CAT 1501 - Fundamentals of 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):** MAT 1290

**Other Prerequisite(s):** OR Other appropriate Math placement test score

**Date Revised:** August 2016

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### Course Description:

This course covers the fundamental principles of distance, elevation and angular measurements used in the practice of engineering surveys. It also includes basic error theory in field observations and mathematical calculations, level circuit and traverse field techniques and basic principles of digital map making. Two classroom, three lab hours per week.

### General Education Outcomes:

- ▣ Critical Thinking/Problem Solving Competency
- ▣ Values/Citizenship/Community Competency

### Course Outcomes:

#### Measurement Techniques

Demonstrate accurate measurement techniques to solve construction related problems.

**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 exam

#### Surveying Equipment

Demonstrate proper use of surveying equipment.

**Assessment Method:** Behavioral observations

**Performance Criteria:**

70% or higher based on a performance checklist

#### Surveying Mathematics

Apply basic mathematical relationships to the surveying process.

**Assessment Method:** Locally developed exams

**Performance Criteria:**

70% or higher correct responses on written exams

### Outline:

Area and volume calculations

Error prorogation

Historic surveying units

Field note records

Distance and direction measurement

Differential and trigonometric leveling

Plan, profile, cross-section drawings

Topographic mapping