Course 600 – Principles and Techniques of Cadastral Mapping

Course Description

Principles and Techniques of Cadastral Mapping is intended to be a comprehensive, interactive program to introduce entry-level map maintenance personnel and assessment technicians to the field of cadastral mapping. Students are presented basic mapping principles and techniques and are expected to demonstrate basic skills that will allow them to plot deeded descriptions in both the metes and bounds land description system and the Public Land Survey System. Principles and Techniques of Cadastral Mapping utilize lectures, classroom discussion, and exercises to emphasize the main concepts and procedures taught in the course.

Chapter One provides the students with a background and history of mapping in general and addresses the specifics of creating a county-wide assessment mapping program.

Chapter Two introduces the students to the various tools and techniques used by cadastral mappers to plot deed descriptions that contain bearings, azimuths, curves and field angles.

Chapter Three provides an overview of locational systems including latitude and longitude and state plane coordinates. This chapter discusses mathematical projections used in the creation of a flat map from a curved surface.

Chapter Four discusses the various base maps available to today's assessment mapping personnel. In addition, aerial photograph displacement is discussed and explained. This provides an understanding of how photo distortion can affect the accuracy of assessment maps.

Chapter Five explains the various methods available to describe land, provides examples of each and uses exercises to enhance the learning experience.

Chapter Six covers conveyance records, area determination and parcel identification systems.

Chapter Seven addresses the importance of proper map maintenance, explains the different types of maintenance the assessment map technician must complete and provides exercises to enhance the learning experience.

Chapter Eight provides guidance in determining the requirements for a proper cadastral mapping program and explains the value of creating and managing a parcel-level information system.

Objectives

Upon completion of Chapter 1, the student should be able to:
• Demonstrate their comprehension of the background and history of the cadastral mapping process, and how it has developed in the assessor's office.

Upon completion of Chapter 2, the student should be able to:
• Draw and solve problems containing bearings, azimuths, field angles and curve data thereby demonstrating their comprehension of the methods used to describe property.

Upon completion of Chapter 3, the student should be able to:
• Demonstrate their comprehension of latitude and longitude.
• Draw and find the location of points demonstrating their comprehension of the State Plane Coordinate System.

Upon completion of Chapter 4, the student should be able to:
• Acknowledge their comprehension of terminology and different types of base maps.

Upon completion of Chapter 5, the student should be able to:
• Demonstrate their understanding and application of Metes and Bounds, PLSS and Platted Subdivisions.

Upon completion of Chapter 6, the student should be able to:
• Demonstrate an understanding of conveyances, acreage determination and parcel identification systems.

Upon completion of Chapter 7, the student should be able to:
• Demonstrate their understanding of maintaining a cadastral map.

Upon completion of Chapter 8, the student should be able to:
• Demonstrate their understanding of mapping program management.

Timetable

Topic	Time Requirement	Day Covered
Chapter 1		
Orientation	30 Minutes	Monday AM
Objectives and Major Points	5 Minutes	Monday AM
Introduction to Cadastral Mapping & Explanation of a Map	10 Minutes	Monday AM
Assessing Without Maps	15 Minutes	Monday AM
Initial Mapping Programs	15 Minutes	Monday AM
Functions of a Map	15 Minutes	Monday AM

Topic	Time Requirement	Day Covered
Assessment Map Systems & Map Components	10 Minutes	Monday AM
Summary	10 Minutes	Monday AM
Review and Questions	10 Minutes	Monday AM
Chapter 2		
Objectives and Major Points	5 Minutes	Monday AM
Use of Basic Equipment – Scale	50 Minutes	Monday AM
Use of Basic Equipment - Protractor	50 Minutes	Monday AM
Distance Measurement	30 Minutes	Monday PM
Distance Measurement – Bearing	135 Minutes	Monday PM
Distance Measurement - Azimuth	30 Minutes	Monday PM
Distance Measurement – Field Angles	55 Minutes	Monday PM/Tuesday AM
Curves	105 Minutes	Tuesday AM
Summary	10 Minutes	Tuesday AM
Review and Questions	10 Minutes	Tuesday AM
Chapter 3		
Objectives and Major Points	5 Minutes	Tuesday PM
Latitude – Characteristics & Measuring	25 Minutes	Tuesday PM
Longitude – Characteristics & Measuring	25 Minutes	Tuesday PM
State Plane Coordinate – Introduction and Concept	25 Minutes	Tuesday PM
State Plane Coordinate – Mathematical Projections	15 Minutes	Tuesday PM
State Plane Coordinate – Practical Applications	75 Minutes	Tuesday PM
Review and Questions	10 Minutes	Tuesday PM
Chapter 4		
Objectives and Major Points	5 Minutes	Tuesday PM
Aerial Photography – Tilt and Relief Displacement, Stereo Modeling	35 Minutes	Tuesday PM
Base Maps – Creating a Digital Orthophotograph, Advantages of a Digital Orthograph	35 Minutes	Wednesday AM
Base Map Considerations	35 Minutes	Wednesday AM

Topic	Time Requirement	Day Covered
Summary and Review	10 Minutes	Wednesday AM
Chapter 5		
Objectives and Major Points	5 Minutes	Wednesday AM
Metes and Bounds: Description Discrepancies, Determining Intent, and Mapping	245 Minutes	Wednesday AM/PM
Public Land Survey System: Background, Standard Lines, Fractional Lots, Fractional Sections, Standard Sections, Subdividing Sections	120 Minutes	Wednesday PM
Platted Subdivision	30 Minutes	Thursday AM
Summary	10 Minutes	Thursday AM
Review and Questions	10 Minutes	Thursday AM
Chapter 6		
Objectives and Major Points	5 Minutes	Thursday AM
Conveyance Records: Estates, Restrictions, Deeds, Wills, Recording	70 Minutes	Thursday AM
Area Determination: Introduction and Methods	70 Minutes	Thursday AM
Parcel Identification Systems: Criteria and Options	35 Minutes	Thursday AM
Chapter 7		
Benefits of Quality Map Maintenance	30 Minutes	Thursday PM
Map Maintenance Categories	30 Minutes	Thursday PM
Maintenance Exercise	120 Minutes	Thursday PM
Chapter 8		
Introduction	10 Minutes	Thursday PM
Requirements of a Successful Cadastral Mapping Program	30 Minutes	Thursday PM
Creation and Management of an Information System	20 Minutes	Thursday PM
Review	120 Minutes	Friday AM