

# Microsurvey CAD Fundamentals

## 16 hour Session Outline

### 1.0 Introduction of software

#### 1.1 Introduction of instructor and experience

##### 1.1.1 Set up files on computers

#### 1.2 Discussion of software (Intellicad, Cogo) – smart entities.dwg

##### 1.2.1 Legacy vs default workspace

##### 1.2.2 pre vs post scaling, overview of project, grips, scaling

#### 1.3 File structure – smart entities.dwg

##### 1.3.1 Project manager

##### 1.3.2 Review saving and recovery from Crash

##### 1.3.3 File structure test

#### 1.4 MStools review all commands

##### 1.4.1 Defaults

##### 1.4.2 Customize, Drawing Settings, Options

##### 1.4.3 Remaining MStools commands

#### 1.5 Review of access to commands – sample.dwg

##### 1.5.1 Overview of all ways to access commands

##### 1.5.2 Manipulation of CAD files

##### 1.5.2.1 Layering, zooms, selection method, Snaps

##### 1.5.3 Grips, IPN, alias, properties, keyboard change

##### 1.5.4 Create custom toolbar

##### 1.5.5 Property dialogue box

##### 1.5.6 Drafting vs cogo (dumb vs smart)

#### 1.6 Access to Help topics

##### 1.6.1 Access to help topics

##### 1.6.2 How help topics are organized

##### 1.6.3 Microsurvey web page for known issues and user forum

##### 1.6.4 Submitting help desk ticket

#### 1.7 Questions

## 2.0 Manipulation of data

### 2.1 MSPoints review all commands

- 2.1.1 Most MSPoints commands through drop down menu – using [Cad Fundamentals.dwg](#)
  - 2.1.1.1 Through all commands (except RTS and groups)
- 2.1.2 ACE and options
  - 2.1.2.1 Remaining access to commands through MSPoints
- 2.1.3 Adding points to drawings – using [subd with houses and manholes.dwg](#)
  - 2.1.3.1 Auto Add
  - 2.1.3.2 Compute stakes
- 2.1.4 Point editing **test**

### 2.2 Cogo review all process

- 2.2.1 Cogo commands - using [Cogo Exercise.dwg](#)
  - 2.2.1.1 Access to the command
  - 2.2.1.2 General principals of coordinate geometry (B&D, intersections)
  - 2.2.1.3 Creating (B&D) and reporting (inverse)
- 2.2.2 Assemble cogo exercise.dwg
- 2.2.3 CAD Line dialogue box
  - 2.2.3.1 Demonstration of CAD line commands
- 2.2.4 CAD Curve dialogue box
  - 2.2.4.1 Demonstration of Curve line commands
- 2.2.5 Key in Cogo Demo Exercise (PDF demo & class)
- 2.2.6 Batch Cogo review
  - 2.2.6.1 Review of built cogo-exercise.bch (page 127)
  - 2.2.6.2 Build simple batch
- 2.2.7 Key in 8910233.tiff as practice (if time)

### 2.3 Questions

### 3.0 Point operations

#### 3.1 Review of last session

- 3.1.1 MSPoints
- 3.1.2 Cogo
- 3.1.3 Using % offset command
- 3.1.4 Auto labeling of curves

#### 3.2 Calculating (best fits, Helmerts)

- 3.2.1 Best fit line and curve
- 3.2.2 RTS vs individual command
- 3.2.3 Helmert's transformation

#### 3.3 MSTraverse

- 3.3.1 Reading in Traverse information
  - 3.3.1.1 TDS .raw format
  - 3.3.1.2 Field genius format
- 3.3.2 Traverse input – active traverse editor
- 3.3.3 Input of traverse data
- 3.3.4 All commands on ribbon bar – through to adjustment

#### 3.4 AutoMap

- 3.4.1 Explanation of use
- 3.4.2 Example of automap creation
- 3.4.3 MSCad – Automap **test**

#### 4.0 Week 3 review

##### 4.1 Raw Data entry

##### 4.2 AutoMap

#### 5.0 Plan checking / Plan editing

##### 5.1 Lot closures and areas calculations

###### 5.1.1 MSCad – Quality control **test**

##### 5.2 Post scaling topics

###### 5.2.1 Labelling drawing

###### 5.2.1.1 Labelling defaults

###### 5.2.1.2 MSCAD – Annotate **test**

###### 5.2.2 Text tools

###### 5.2.2.1 MSCAD – Setting the final drawing scale **test**

###### 5.2.3 Remainder of MS Annotate Menu

##### 5.3 Layout vs Model space

###### 5.3.1 Description of both

###### 5.3.2 Recent example in Metric

###### 5.3.3 Discussion of drawings in Imperial

##### 5.4 Creating a template

###### 5.4.1 Use metric or imperial examples in Session 4

###### 5.4.2 Put in title and index and company and north block

##### 5.5 Print / Plot command

###### 5.5.1 Ctb files

###### 5.5.2 Scale factors for printing

#### 6.0 Review of Weeks 1 to 4

##### 6.1 MStools – defaults

##### 6.2 MSPoints – ACE

##### 6.3 MSCogo – data entry

##### 6.4 MStraverse – data entry and adjustments

##### 6.5 AutoMap

##### 6.6 MSAnnotate

##### 6.7 Printing/Plotting