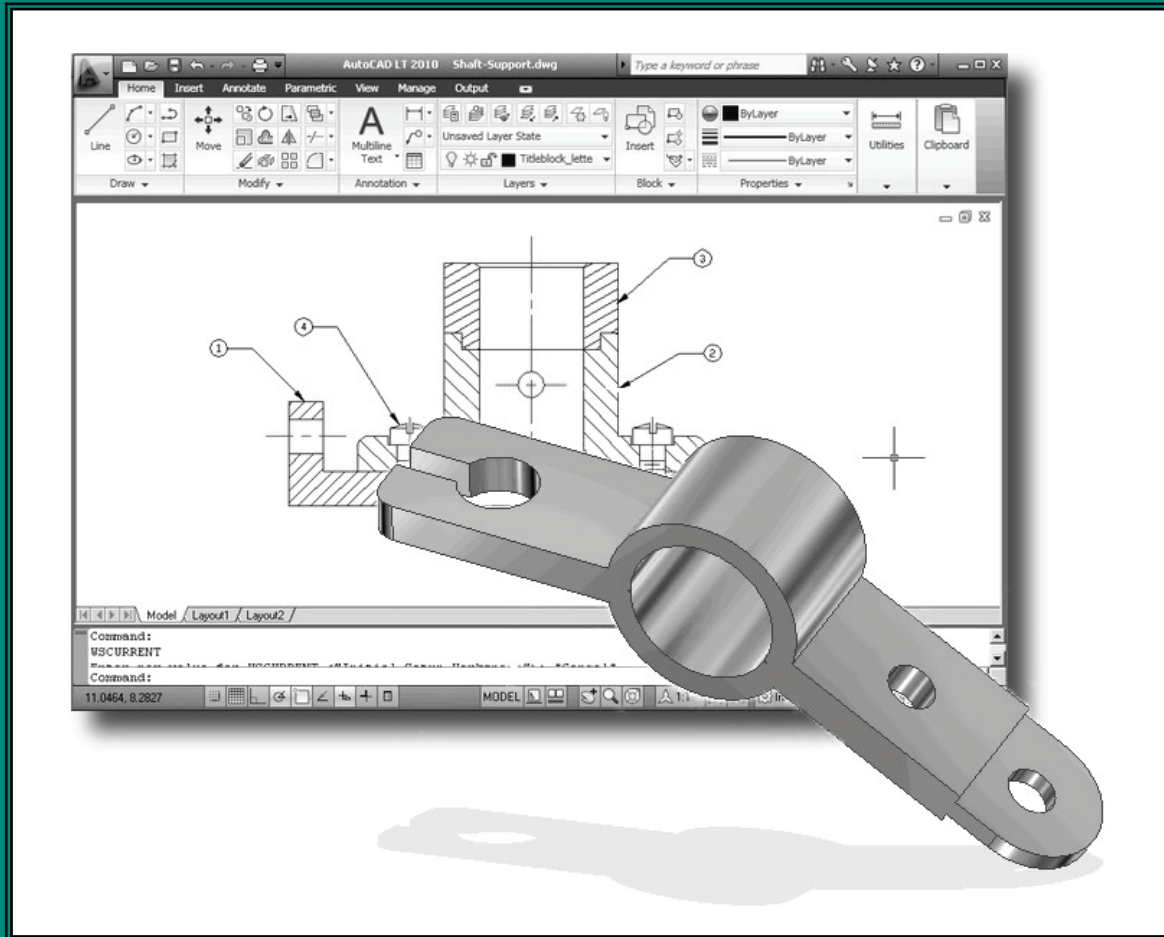


# AutoCAD LT® 2011 Tutorial



**Randy H. Shih**  
*Oregon Institute of Technology*

**SDC**  
PUBLICATIONS

[www.SDCpublications.com](http://www.SDCpublications.com)

Schroff Development Corporation

# Table of Contents

## Preface

## Acknowledgments

## Introduction

### Getting Started

Introduction	Intro-2
Development of Computer Geometric Modeling	Intro-2
Why Use AutoCAD LT <sup>®</sup> 2011	Intro-5
Getting Started with AutoCAD LT <sup>®</sup> 2011	Intro-7
AutoCAD LT <sup>®</sup> 2011 Screen Layout	Intro-8
Mouse Buttons	Intro-12
[Esc] - Canceling Commands	Intro-12
On-Line Help	Intro-13
Leaving AutoCAD LT <sup>®</sup> 2011	Intro-14
Creating a CAD File Folder	Intro-15

## Lesson 1

### Geometric Construction Basics

Introduction	1-2
Starting Up AutoCAD LT <sup>®</sup> 2011	1-2
Drawing Units Setup	1-4
Drawing Area Setup	1-5
Using the <i>InfoCenter</i> to Get More Information	1-6
Drawing Lines with the <i>Line</i> Command	1-7
Visual Reference	1-10
<i>GRID</i> ON	1-10
Dynamic Input OFF	1-11
<i>SNAP</i> ON	1-11
Using the <i>ERASER</i>	1-13
Repeat the Last Command	1-14
The CAD Database and the User Coordinate System	1-15
Changing to the 2D UCS Icon Display	1-16
Cartesian and Polar Coordinate Systems	1-17
Absolute and Relative Coordinates	1-17
Defining Positions	1-18
The <i>Guide Plate</i>	1-18
Creating <i>Circles</i>	1-22
Save the CAD File	1-24
Exit AutoCAD LT	1-25
Review Questions	1-26
Exercises	1-27

## Lesson 2

### Construction and Editing Tools

Introduction	2-2
Starting Up AutoCAD LT 2011	2-4
Dynamic Input	2-4
The Gasket Design	2-7
Drawing Units Setup	2-8
<i>GRID</i> and <i>SNAP</i> Intervals Setup	2-9
Using the <i>LINE</i> Command	2-10
Object Snap Toolbar	2-12
Using the Object Snap Options	2-13
Using the <i>EXTEND</i> Command	2-16
Using the <i>TRIM</i> Command	2-17
Creating a <i>TTR Circle</i>	2-18
Using the <i>FILLET</i> Command	2-19
Converting Objects into a <i>Polyline</i>	2-20
Using the <i>OFFSET</i> Command	2-21
Using the Area Inquiry Tool to Measure Area and Perimeter	2-22
Using the <i>EXPLODE</i> Command	2-24
Create another <i>FILLET</i>	2-24
Save the CAD File	2-25
Exit AutoCAD	2-25
Review Questions	2-26
Exercises	2-27

## Lesson 3

### Object Properties and Organization

Introduction	3-2
Floor Plan Design	3-2
Starting Up AutoCAD LT® 2011	3-3
Activate the Startup Option	3-3
Drawing Units Setup	3-5
Reference Area Setup	3-5
<i>GRID</i> and <i>SNAP</i> Intervals Setup	3-6
Using the <i>ZOOM Extents</i> Command	3-7
The AutoCAD LT <i>DOUBLE LINE</i> Command	3-7
Setting the Offset Distance of <i>Double Lines</i>	3-8
Setting the Appearance of Endpoints	3-8
Controlling Placement of <i>Double Lines</i>	3-9
The <i>DLINE</i> Break Option	3-9
Drawing <i>Double Lines</i>	3-10
Display the Object Snap Toolbar	3-11
Controlling the Appearance of Intersections	3-11
Creating Additional Interior Walls	3-12
Using <i>Layers</i> and Object Properties	3-16
Using <i>ZOOM REALTIME</i>	3-19

Modeling the Bathroom	3-19
Controlling <i>Layer Visibility</i>	3-21
Adding another New Layer	3-22
Moving Objects to a Different Layer	3-22
Review Questions	3-24
Exercises	3-25

## Lesson 4

### Orthographic Views in Multiview Drawings

Introduction	4-2
The LOCATOR Design	4-2
The LOCATOR Part	4-3
Starting Up AutoCAD LT <sup>®</sup> 2011	4-3
<i>GRID</i> and <i>SNAP</i> Intervals Setup	4-4
<i>Layers</i> Setup	4-5
Drawing <i>Construction Lines</i>	4-6
Using the <i>OFFSET</i> Command	4-6
Set Layer <i>Object</i> as the Current Layer	4-8
Using the <i>Running Object Snaps</i>	4-8
Creating <i>Object lines</i>	4-10
Turn <i>OFF</i> the Construction Lines	4-11
Adding More Objects in the Front View	4-11
The AutoSnap <sup>™</sup> and AutoTrack <sup>™</sup> Features	4-12
Adding More Objects in the Top View	4-14
Drawing using the <i>Miter Line</i> Method	4-18
More <i>Layers Setup</i>	4-20
Top View to Side View Projection	4-21
Completing the Front View	4-23
Object Information Using the List Command	4-25
Object Information Using the Properties Command	4-26
Review Questions	4-27
Exercises	4-28

## Lesson 5

### Basic Dimensioning and Notes

Introduction	5-2
The Bracket Design	5-2
Starting Up AutoCAD LT <sup>®</sup> 2011	5-3
<i>GRID</i> and <i>SNAP</i> intervals Setup	5-4
<i>Layers</i> Setup	5-5
The Bracket Design	5-6
Drawing Construction Lines	5-7
Using the <i>OFFSET</i> Command	5-7
Set Layer <i>Object_Lines</i> as the <i>Current Layer</i>	5-9
Creating Object lines	5-9
Creating Hidden lines	5-10

Creating Center lines	5-11
Turn <i>OFF</i> the Construction Lines	5-11
Using the <i>FILLET</i> Command	5-12
Saving the CAD File	5-13
Accessing the Dimensioning Commands	5-14
The <i>Dimension Toolbar</i>	5-15
Using <i>Dimension Style Manager</i>	5-15
Dimensions Nomenclature and Basics	5-16
Using the <i>Center Mark</i> Option	5-19
Adding <i>Linear</i> Dimensions	5-20
Adding <i>Angular</i> Dimensions	5-21
Adding <i>Radius</i> and <i>Diameter</i> Dimensions	5-22
Using the <i>Multiline TEXT</i> Command	5-23
Adding Special Characters	5-24
Saving the CAD File	5-25
A Special Note on Layers Containing Dimensions	5-25
Review Questions	5-26
Exercises	5-27

## Lesson 6

### Templates and Plotting

Introduction	6-2
The Geneva Cam Design	6-2
Starting Up AutoCAD LT® 2011	6-3
Setting Up the <i>Plot Style Mode</i>	6-4
Starting a New File	6-6
<i>GRID</i> and <i>SNAP</i> Intervals Setup	6-7
<i>Layers</i> Setup	6-8
Adding Borders and Title Block in the Layout	6-9
Create a <i>Template file</i>	6-12
Exit AutoCAD LT® 2011	6-13
Starting Up AutoCAD LT® 2011	6-13
The Geneva Cam Drawing	6-14
Drawing Construction Lines	6-15
Creating Object Lines	6-16
Using the <i>OFFSET</i> Command	6-17
Using the <i>MIRROR</i> Command	6-19
Using the <i>ARRAY</i> Command	6-20
Creating a <i>Viewport</i> Inside the Title Block	6-22
<i>Viewport</i> Properties	6-23
Hide the <i>Viewport Borders</i>	6-24
Adjusting the Dimension Scale	6-24
<i>Plot/Print</i> the Drawing	6-26
Review Questions	6-28
Exercises	6-29

**Lesson 7****Auxiliary Views and Editing with GRIPS**

Introduction	7-2
The V-Block Design	7-2
The V-Block Example	7-3
Starting Up AutoCAD LT® 2011	7-3
Using the AutoCAD LT Classic Workspace	7-4
Setting up the Principal Views	7-5
Setting up the <i>Top View</i>	7-8
Using the <i>OFFSET</i> Command	7-9
Creating Object Lines in the <i>Front View</i>	7-11
Setting the POLAR TRACKING Option	7-12
Setting up an Auxiliary View	7-15
Aligning the Auxiliary View to the Front View	7-16
Creating the V-Cut in the Auxiliary View	7-16
Creating the V-Cut in the <i>Front View</i> and <i>Top View</i>	7-19
Setting the <i>Polar Tracking</i> Option	7-21
Completing the <i>Top View</i>	7-21
Edit the Plot Style Table	7-25
Review Questions	7-27
Exercises	7-28

**Lesson 8****Section Views**

Introduction	8-2
The Bearing Design	8-2
Starting Up AutoCAD LT® 2011	8-3
The Bearing Design	8-4
Setting Up the <i>Principal Views</i>	8-4
Creating Object Lines in the <i>Front View</i>	8-6
Editing the Circles	8-8
Setting Up the <i>Side View</i>	8-9
Adding Hidden Lines in the <i>Side View</i>	8-11
Changing the <i>Linetype Scale</i> Property	8-13
Stretching and Moving Objects with <i>GRIPS</i>	8-14
Drawing a Cutting Plane Line	8-15
Converting the Side View into a Section View	8-18
Adding <i>Section Lines</i>	8-20
Review Questions	8-23
Exercises	8-24

**Lesson 9****Assembly Drawings and AutoCAD Blocks**

Introduction	9-2
The Shaft Support Subassembly	9-3

Additional parts	9-3
(1) Cap-Screw	9-3
(2) Collar	9-4
(3) Base-Plate	9-4
Starting Up AutoCAD LT® 2011	9-5
Using AutoCAD LT with the Internet	9-6
Rearrange the Displayed Windows	9-7
Defining a <i>Block</i>	9-8
Inserting a <i>Block</i>	9-10
Starting the <i>Assembly Drawing</i>	9-11
Copying and Pasting with the <i>Windows Clipboard</i>	9-12
Converting the View into a <i>Section View</i>	9-13
Adding the <i>Bearing</i> to the Assembly	9-15
Adding the <i>Cap-Screws</i> to the Assembly	9-18
Creating <i>Callouts</i> with the Multileader Command	9-20
Creating a <i>Viewport</i> in the A-size Layout	9-23
<i>Viewport</i> Properties	9-24
Adding a <i>PARTS LIST</i> to the Assembly Drawing	9-25
Review Questions	9-31
Exercise	9-32

## **Lesson 10**

### **3D Wireframe Modeling**

Introduction	10-2
The V-Block Design	10-3
Starting Up AutoCAD LT® 2011	10-4
The 2D Sketch of the Base	10-5
UCS – It is an XY CRT, but an XYZ World	10-6
Viewing the 2D Sketch in 3D Space	10-7
Creating a Wireframe Box	10-9
Using the <i>View</i> and <i>UCS</i> Toolbars	10-10
Creating Construction Lines in the Front View	10-11
Copying in the Negative Z Direction	10-12
Creating an Inclined Line at the Base of the Model	10-13
Creating Object Lines	10-14
Multiple Viewports	10-16
Using the Mirror Command	10-17
Turn <i>OFF</i> the Construction Lines	10-19
Creating a NEW UCS	10-20
Changing the Displayed View and Creating a Named View	10-21
Creating the V-Cut Feature on the Inclined Plane	10-23
Extend the Cut and GRIP Editing	10-24
Conclusion	10-25
Review Questions	10-26
Exercises	10-27

## **Index**