KANDULA SRINIVASA REDDY MEMORIAL COLLEGE OF ENGINEERING
(AUTONOMOUS)

KADAPA-516003. AP

(Approved by AICTE, Affiliated to JNTUA, Ananthapuramu, Accredited by NAAC)

(An ISO 9001-2008 Certified Institution)

DEPARTMENT OF MECHANICAL ENGINEERING

CERTIFICATE COURSE

ON

"AUTO CAD"

Resource Person : Mr. Ram Babu , APSSDC

Course Coordinator: Smt. E. Reddy Gowthami, Assistant Professor, Dept. of ME, KSRMCE

Duration: 14/11/2022 to 30/11/2022

K.S.R.M. COLLEGE OF ENGINEERING

(UGC-AUTONOMOUS)

Kadapa, Andhra Pradesh, India– 516 003

Approved by AICTE, New Delhi & Affiliated to JNTUA, Ananthapuramu.

An ISO 14001:2004 & 9001: 2015 Certified Institution

Lr./KSRMCE/ME/2022-23/

Date:10-11-2022

To
The Principal,
KSRMCE,
Kadapa.

Respected Sir,

Sub: Permission to Conduct Certification Course on "AUTO CAD"
14/11/2022 to 30/11/2022–Req- Reg.

The Department of Mechanical Engineering is planning to offer a Certification Course on "AUTO CAD" to B. Tech. students. The course will be conducted from **14/11/2022 to 30/11/2022**. In this regard, I kindly request you to grant permission to conduct Certification Course.

Thanking you sir,

Forwarded to principal sir

Yours faithfully
E. R. Gowthami
(E.REDDY GOWTHAMI, Asst.Professor in MED)

Permitted
U.S.S. Murty
10/11/2022

K.S.R.M. COLLEGE OF ENGINEERING

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Cr./KSRMCE/ME/2022-23/

Date: 11/11/2022

Circular

The Department of Mechanical Engineering is offering a Certification Course on "AUTO CAD" from **14/11/2022 to 30/11/2022** to B.Tech students. In this regard, interested students are requested to register their names for the Certification Course with Course Coordinator.

For further information contact Course Coordinator.

Course Coordinator: Smt. E.Reddy Gowthami, Asst.professor, Dept. of ME.-KSRMCE.
Contact No: 8142791619

HOD

Dept. of ME

Professor & Head
Department of Mechnical Engineering
K.S.R.M. College of Engineering
KADAPA - 516 003.

Cc to:

IQAC-KSRMCE

K.S.R.M. COLLEGE OF ENGINEERING

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Date: 11/11/2022

DEPARTMENT OF MECHANICAL ENGINEERING

REGISTRATION FORM

Certification Course
On
"AUTO CAD" From 14/11/2022 to 30/11/2022

S.No	Full Name	Roll Number	Branch	Semester	Signature
1	DHANYASI CHARAN KUMAR	229Y5A0316	MECHANICAL	III	D. charan kumar
2	DUDEKULA AMEER BASHA	229Y5A0317	MECHANICAL	III	D. Ameer basha.
3	DUDEKULA USMAN	229Y5A0318	MECHANICAL	III	D. Usman
4	EBBILI PRAMOD	229Y5A0319	MECHANICAL	III	E. Pramod
5	GATTA VENKATA SIVA	229Y5A0320	MECHANICAL	III	
6	IMMAREDDY VENKATA SUBBA REDDY	229Y5A0322	MECHANICAL	III	I.V. Subba Reddy
7	KANAKADANDI VENKATA SAI KUMAR	229Y5A0323	MECHANICAL	III	K.V. Sai Kumar
8	KUNCHAPU RAMESH	229Y5A0326	MECHANICAL	III	K. Ramesh
9	KUTHALA ADARSHA	229Y5A0327	MECHANICAL	III	K. Adarsha
10	M RAMESH	229Y5A0328	MECHANICAL	III	M. Ramesh
11	MADANAPURI YUGANDHAR	229Y5A0329	MECHANICAL	III	M. Yugandhar
12	MARAM RUTWIK MANI KANTH	229Y5A0330	MECHANICAL	III	M.R.M.K.
13	MILLULLAGARI MANSOOR BASHA	229Y5A0331	MECHANICAL	III	M. Mansoor Basha
14	MOOD ABHILASH NAIK	229Y5A0332	MECHANICAL	III	
15	NAGIRIDONE MURALI KRISHNA	229Y5A0333	MECHANICAL	III	N. Murali krishna
16	P ARAVIND	229Y5A0334	MECHANICAL	III	P. Aravind
17	PAIDIPALEM SHAMEER BASHA	229Y5A0335	MECHANICAL	III	P. Shameer Basha
18	PALLI MALLIKARJUNA	229Y5A0336	MECHANICAL	III	P. Mallikarjuna
19	PASALA UDAY KUMAR	229Y5A0337	MECHANICAL	III	P. Uday Kumar
20	PASAM LOKCHAND YADAV	229Y5A0338	MECHANICAL	III	P. Lokchandyadav
21	PEETLA HAREESH	229Y5A0339	MECHANICAL	III	P. Hareesh
22	PERUGU NARESH BABU	229Y5A0340	MECHANICAL	III	P. Naresh

	YADAV				P. naresh
23	PITTALA SARATH SAI	229Y5A0341	MECHANICAL	III	P. Sarath sai
24	POLIMERA PAVAN KUMAR	229Y5A0342	MECHANICAL	III	P. Pavankumar
25	RABBU MURALIKRISHNA	229Y5A0343	MECHANICAL	III	R. murali
26	RAGI MADHU	229Y5A0344	MECHANICAL	III	R. Madhu
27	SAYAVARAPU RAJENDRA	229Y5A0345	MECHANICAL	III	S. Rajendra
28	SHAIK HAMER KAMID	229Y5A0346	MECHANICAL	III	S. Hamer kamid.
29	SREERAM SIVA	229Y5A0347	MECHANICAL	III	Shaik Sadiq
30	SHAIK MOHAMMED SADIQ	229Y5A0348	MECHANICAL	III	S. Nagoor Basha
31	SHAIK NAGOOR BASHA	229Y5A0349	MECHANICAL	III	S Siva.
32	SREERAM SIVA	229Y5A0350	MECHANICAL	III	S. Shivaji
33	SUGALI SHIVAJI NAIK	229Y5A0351	MECHANICAL	III	S. Adil
34	SYED MOHAMMED ABDULLA ADIL	229Y5A0352	MECHANICAL	III	T. Charan Raj
35	TALARI CHARAN RAJ	229Y5A0353	MECHANICAL	III	T. Mahesh
36	THUMMALURU MAHESH	229Y5A0354	MECHANICAL	III	V. Vinaykumar
37	VADDE UPENDRA	229Y5A0356	MECHANICAL	III	
38	YAMIKA HARI BABU	229Y5A0357	MECHANICAL	III	

Coordinator: B. R. Gouthy

HOD

Professor & Head
Department of Mechnical Engineering
K.S.R.M. College of Engineering
KADAPA - 516 003.

SYLLABUS OF CERTIFICATION COURSE

"AUTO CAD"

Course Objectives :

1. Develop the engineering imagination essential for successful design.
2. AutoCAD is used to create computer-aided designs or software applications including drafting.
3. Familiarize how industry communicates technical information.

Course Outcomes :

1. To draw and edit digital 2D and 3D designs more quickly
2. To draw isometric drawings using CAD packages.
3. Analyze orthographic drawings using CAD packages

UNIT-I:

Introduction to CATIA as a CAD Software. Sketch: Profile Toolbar, operation (corner chamfer, relimitations, Transformations, Project3Delement), Types of Constraints, Work Bench

UNIT –II :

Sketcher: Sketch Tools (Sketch solving status, Sketch Analysis, output feature, Visualization toolbar, user selection filter.

Part Design Modeling of Machined component, Material Addition and removal (pad, Pocket, Shaft, Groove), Sketch and Positioned Sketch, Types of Filter, Chamfer and Holes

UNIT-III :

Modeling of Machined component-2. Pattern (Rectangular, circular) Thread/Tap, Datum features. Simple Draft. Frequently used components in Catia/Creo. Advanced Design Features: Axis system, Types of Draft, Shell, Stiffener, Rib slot, Multisection solid. Advanced Commands used in Part Design, Practice on simple Machine part Drawing.

UNIT-IV :

ASSEMBLY AND DRAFTING: Introduction to Assembly, Types of Assembly approaches, Types of constrains and DOF, Placement of components in the Assembly, Manipulating components assembly of Stuffing box and Screw jack .

UNIT-V :

Introduction to Drafting & Detailing theory. Types of Generative Drafting, Interface, Initial Drafting setting. Sheet Background. Views of (Ortho – ISO). Dimensions. Views (Aux. Section. Details. Clipping. Broken.) View properties. DATUMS & Tolerance. Examples Annotations: GD & T. Symbols (Machining. Roughness. Custom) Dress-up Toolbar. Practice on simple Examples.

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SCHEDULE

Department of Mechanical Engineering

Certification Course

On

"AUTO CAD" From 14/11/2022 to 30/11/2022

Day	Duration	Name of the Resource Person	Address	Delivery topics
14/11/2022	4.00 PM to 6.00 PM	Sri.M.Ram Babu	APSSDC	Introduction to CATIA as a CAD Software
15/11/2022	4.00 PM to 6.00 PM	Sri.M.Ram Babu	APSSDC	Sketch: Profile Toolbar, operation (corner chamfer, relimitations, Transformations. Project3Delement).
16/11/2022	4.00 PM to 6.00 PM	Sri.M.Ram Babu	APSSDC	Types of Constraints, Work Bench Sketcher: Sketch Tools (Sketch solving status, Sketch Analysis, output feature, Visualization toolbar, user selection filter
17/11/2022	2.00 PM to 6.00 PM	Sri.M.Ram Babu	APSSDC	PART DESIGN Modeling of Machined component, Material Addition and removal (pad, Pocket, Shaft, Groove), Sketch and Positioned Sketch, Types of Filter, Chamfer and Holes
18/11/2022	4.00 PM to 6.00 PM	Sri.M.Ram Babu	APSSDC	Modeling of Machined component-2. Pattern (Rectangular, circular) Thread/Tap, Datum features. Simple Draft. Frequently used components in Catia/Creo
19/11/2022	2.00 PM to 6.00	Sri.M.Ram Babu	APSSDC	Advanced Design Features: Axis system, Types of Draft, Shell, Stiffener, Rib slot,

	PM			Multi section solid. Advanced Commands used in Part Design, Practice on simple Machine part Drawing
21/11/2022	4.00 PM to 6.00 PM	Sri.M.Ram Babu	APSSDC	ASSEMBLY AND DRAFTING: Introduction to Assembly, Types of Assembly approaches.
22/11/2022	3.00 PM to 6.00 PM	Sri.M.Ram Babu	APSSDC	Types of constrains and DOF, Placement of components in the Assembly, Manipulating components assembly of Stuffing box and Screw jack .
23/11/2022	4.00 PM to 6.00 PM	Sri.M.Ram Babu	APSSDC	Introduction to Drafting & Detailing theory,
24/11/2022	4.00 PM to 6.00 PM	Sri.M.Ram Babu	APSSDC	Types of Generative – Interactive , Initial Drafting setting
25/11/2022	4.00 PM to 6.00 PM	Sri.M.Ram Babu	APSSDC	Sheet Background. Views of (Ortho – ISO), Dimensions
26/11/2022	4.00 PM to 6.00 PM	Sri.M.Ram Babu	APSSDC	Views (Aux, Section, Details, Clipping, Broken,)
28/11/2022	4.00 PM to 6.00 PM	Sri.M.Ram Babu	APSSDC	View properties, DATUMS & Tolerance.Examples
29/11/2022	4.00 PM to 6.00 PM	Sri.M.Ram Babu	APSSDC	Annotations: GD & T, Symbols (Machining, Roughness, Custom)
30/11/2022	4.00 PM to 6.00 PM	Sri.M.Ram Babu	APSSDC	Dress-up Toolbar, Practice on simple Examples

Resource/Person

Coordinator

HOD

Professor & Head
Department of Mechnical Engineering
K.S.R.M. College of Engineering
KADAPA - 516 003.

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DEPARTMENT OF MECHANICAL ENGINEERING

Attendance sheet of Certification course on "AUTO CAD" from 14th November 2022 to 30th November 2022

Sl. No.	Roll No.	Name	14/11	15/11	16/11	17/11	18/11	19/11	21/11	22/11	23/11	24/11	25/11	26/11	28/11	29/11	30/11
1	229Y5A0316	D Charan Kumar								A							
2.	229Y5A0317	Dudekula Ameer Basha	AB	AB	AB	A	AB	AB	AB	AB	AB	AB	AB	AB	AB	AB	AB
3.	229Y5A0318	Dudekula Usman												A			
4.	229Y5A0319	Ebbili Pramod					A										
5.	229Y5A0320	Gatta Venkata Siva			A												
6.	229Y5A0322	I Venkata Subba Reddy															
7.	229Y5A0323	K Venkata Sai Kumar							A								
8.	229Y5A0326	Kunchapu Ramesh												A			
9.	229Y5A0327	K Aadarsha									A						
10	229Y5A0328	M Ramesh			A												
11	229Y5A0329	M Yugandhar													A		
12	229Y5A0330	M Rutwik Mani Kanth		A													
13	229Y5A0331	M Mansoor Basha											A				
14	229Y5A0332	Mood Abhilash Naik								A							
15	229Y5A0333	N Murali Krishna		A													
16	229Y5A0334	P Aravind	A														
17	229Y5A0335	P.Shameer Basha			A								A				
18	229Y5A0336	Palli Mallikarjuna	A									A					
19	229Y5A0337	Pasala Uday Kumar					A										

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20	229Y5A0338	P.Lokchand Yadav
21	229Y5A0339	Peetla Hareesh
22	229Y5A0340	P.Naresh Babu Yadav
23	229Y5A0341	Pittala Sarath Sai
24	229Y5A0342	Polimera Pavan Kumar
25	229Y5A0343	R. Murali Krishna
26	229Y5A0344	Ragi Madhu
27	229Y5A0345	Sayavarapu Rajendra
28	229Y5A0346	Shaik Hamer Kamid
29	229Y5A0347	Sreeram Siva
30	229Y5A0348	S Mohammed Sadiq
31	229Y5A0349	Shaik Nagoor Basha
32	229Y5A0350	Sreeram Siva
33	229Y5A0351	Sugali Shivaji Naik
34	229Y5A0352	S.Md. Abdulla Adil
35	229Y5A0353	Talari Charan Raj
36	229Y5A0354	Thummaluru Mahesh
37	229Y5A0356	Vadde Upendra
38	229Y5A0357	Yamika Hari Babu

E. R. Gowthy
Coordinators

HoD.
Professor & Head
Department of Mechnical Engineering
K.S.R.M. College of Engineering
KADAPA - 516 003.

KSRM
COLLEGE OF ENGINEERING

(UGC - Autonomous)
Kadapa, Andhra Pradesh, India– 516 005
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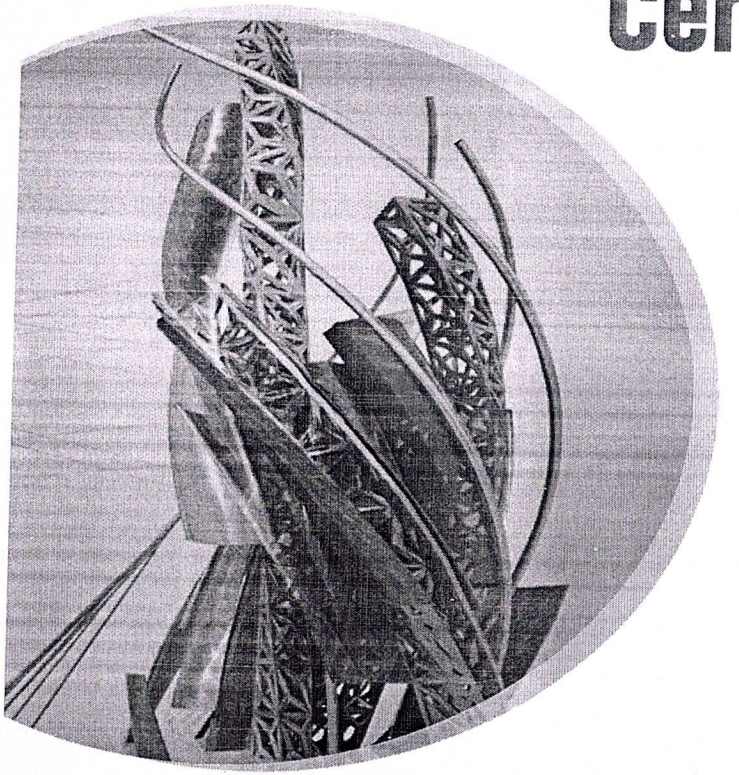
KSN
lives

Certification Program on AUTOCAD



Mechanical Engineering Department, K.S.R.M.C.E

PG 101

14th November 2022

Resources Persons **APSSDC**

Coordinators **E. Reddy Gowthami,**
Assistant Professor

Co-coordinator **P. Sai Teja,**
Assistant Professor

Organizer **G. Sunil kumar,**
Assistant Professor,
ECE Department

ıe Vision of the Department of Mechanical Engineering is to be Globally recognized in providing Mechanical Engineering education , leading to well qualified engineers who are innovative, immediate c
o their profession and successful in advanced studies.

M1: To educate, prepare and mentor students to excel as professionals.
M2: To afford our students with the basic skills to communicate effectively and to develop the ability to function as members of multi-disciplinary teams.
M3: To strengthen continuing education with special focus on training and skill up gradation of teaching and technical manpower of the region.

K.S.R.M. COLLEGE OF ENGINEERING

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Report of
Certification Course on "Auto CAD"
From 04/11/2022 to 30/11/2022

Target Group	:	**B.Tech Students**
Details of Participants	:	**38 Students**
Co-coordinator(s)	:	**Smt. E. Reddy Gowthami**
Resource Person(s)	:	**Sri M. Ram Babu**
Organizing Department	:	**Mechanical Engineering**
Venue	:	**Engineering Graphics and Design Lab, Mechanical Department**

Description:

The Department of Mechanical Engineering conducted a Certification Course on "AUTO CAD" from 14thNovember 2022 to 30th November 2022. The course Resource Person is Sri M. Ram Babu APSSDC.

The main objective of this course is to introduce the fundamental concepts of Auto Cad . The main purpose of auto cad is to present your work imagination with calculated and specific measurements. AutoCAD is used to create computer-aided designs or software applications including drafting. - AutoCAD develops the application in both the 2D and 3D formats and provides the information to the application.

- Learn sketching and taking field dimensions.
- Take data and transform it into graphic drawings.
- Learn basic engineering drawing formats.
- Learn basic Auto Cad skills.
- Learn who draw 2D drawings in Auto Cad.

AutoCAD enables companies to design and plan projects virtually. AutoCAD supports a powerful yet easier workflow that works correctly and helps users to execute commands effectively and precisely.

AutoCAD as an architectural planning tool: It enables architects to design, plan, execute, and analyze the strength of a building at the design stage level. AutoCAD as an engineering drafting tool: It helps engineers to design, analyze and solve design issues resulting in accurate designs.

3D modeling and visualization are two main important features of the program. AutoCAD allows the modelers to create powerful 3d models, wireframes, meshes & surfaces using various 3D tools & commands. AutoCAD is a professional application with flexibility in design changes and an auto-specification check feature.

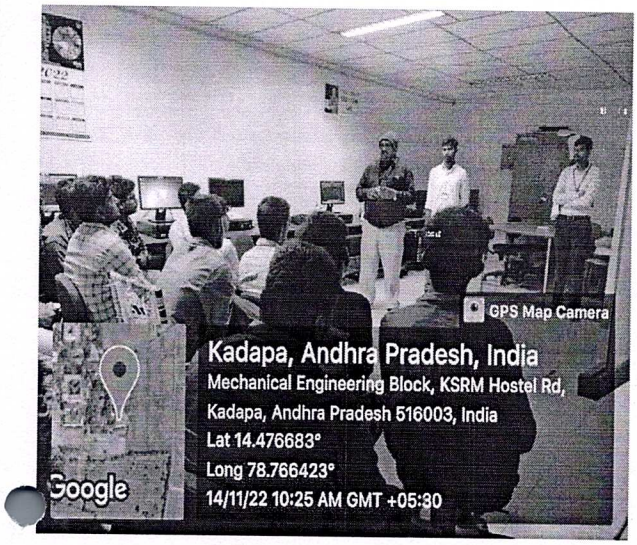
With improved capabilities and a better user interface, AutoCAD will continue to be the world's most well-liked and often-used drawing and drafting product. As a result, AutoCAD has a promising future and a wide range of applications. Additionally, it is not merely software but a crucial component of the CAD market.

AutoCAD is an important skill when pursuing jobs in architecture, interior design, drafting, mechanical, electrical, and civil engineering. Learning AutoCAD will give you a solid foundation to master other design applications; all other CAD software is modeled after its interface.

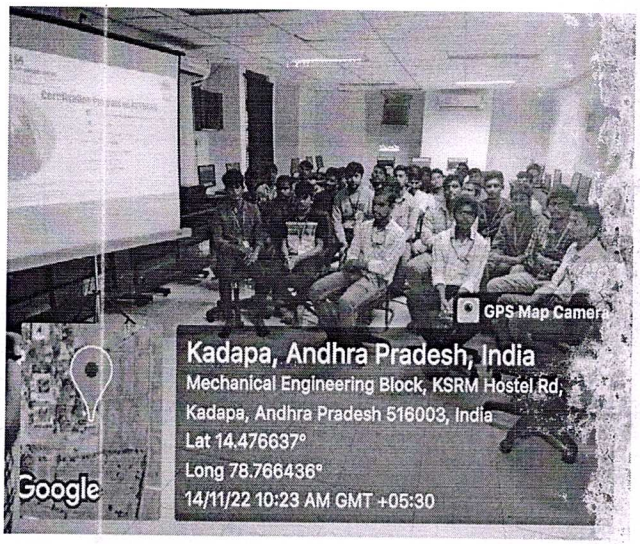
Computer-aided design (CAD) development is a technical field involving mechanical and structural design skills and an understanding of engineering principles. Many CAD technicians and drafters develop specialized CAD skills across different software and design techniques.

Photos

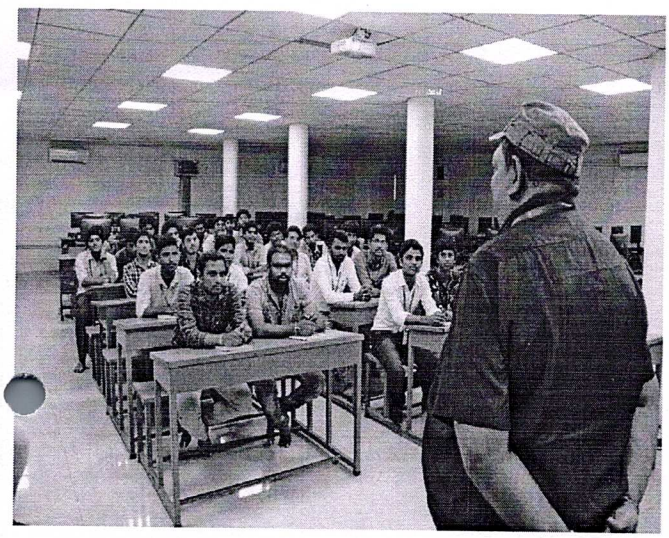
The pictures taken during the course are given below:



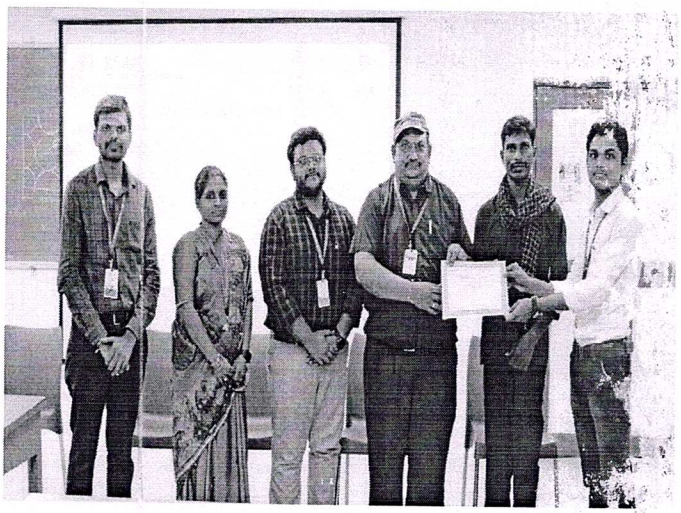
Resource Person Sri M Ram Babu ,APSSDC giving Keynote Address.



Participants Keenly Listening the Lecture



HOD addressing the Gallery



Certificates Distribution by the HoD
Dr.D.Ravikanth

Coordinator(s)

HoD

Professor & Head
Department of Mechnical Engineering
K.S.R.M. College of Engineering
KADAPA - 516 003.

ANDHRA PRADESH STATE SKILL DEVELOPMENT CORPORATION (APSSDC)

(Department of Skills Development and Training, Govt of Andhra Pradesh)

SkillAP APSSDC

Certificate

Regd. No: 229Y5A0319

This is to certify that Mr/Ms Ebbili Pramod of KSRMCE, KADAPA has actively participated and Sucessfully completed the requirements for AUTO CAD 2022-2023 organized by Andhra Pradesh State Skill Development Corporation (APSSDC), in association with Dassault Systemes from 14-11-2022 to 30-11-2022

Smt. H. Bharathi Reddy
General Manager -Technical
APSSDC

Dr. D.V. Rama Koti Reddy
Executive Director
APSSDC

Andhra Pradesh State Skill Development Corporation, Government of Andhra Pradesh

ANDHRA PRADESH STATE SKILL DEVELOPMENT CORPORATION (APSSDC)

(Department of Skills Development and Training, Govt of Andhra Pradesh)

SkillAP APSSDC

Certificate

Regd. No: 229Y5A0317

This is to certify that Mr/Ms Dudekula Ameer Basha of KSRMCE, KADAPA has actively participated and Sucessfully completed the requirements for AUTO CAD 2022-2023 organized by Andhra Pradesh State Skill Development Corporation (APSSDC), in association with Dassault Systemes from 14-11-2022 to 30-11-2022

Smt. H. Bharathi Reddy
General Manager -Technical
APSSDC

Dr. D.V. Rama Koti Reddy
Executive Director
APSSDC

Andhra Pradesh State Skill Development Corporation, Government of Andhra Pradesh

ANDHRA PRADESH STATE SKILL DEVELOPMENT CORPORATION (APSSDC)

(Department of Skills Development and Training, Govt of Andhra Pradesh)

Skill AP
APSSDC

Certificate

Regd. No: 229Y5A0319

This is to certify that Mr/Ms Ebbili Pramod of KSRMCE, KADAPA has actively participated and Sucessfully completed the requirements for AUTO CAD 2022-2023 organized by Andhra Pradesh State Skill Development Corporation (APSSDC), in association with Dassault Systemes from 14-11-2022 to 30-11-2022

Smt. H. Bharathi Reddy
General Manager -Technical
APSSDC

Dr. D.V. Rama Koti Reddy
Executive Director
APSSDC

Andhra Pradesh State Skill Development Corporation, Government of Andhra Pradesh

Feed Back Form for Certification course on Auto CAD by 4/11/23 to 30/11/23

* Indicates required question

1. 1.Email Id *

2. 2.Roll Number *

3. 3.Name of the participent *

4. 4. Name of the college *

5. 5.Semester & Section *

6. 6. Is the course met your expectations *

Mark only one oval.

- ◯ Strongly disagree
- ◯ Disagree
- ◯ Agree
- ◯ Strongly Agree
- ◯ Other:

7. 7. How would you rate the content of Lecture? *

Mark only one oval.

- ◯ Poor
- ◯ Ok
- ◯ Good
- ◯ Excellent
- ◯ Other: _____

8. 8. Speaker lectur is Clear and understanding *

Mark only one oval.

- ◯ Yes
- ◯ No

9. 9. Suggestions If any *

_____

_____

_____

_____

_____

Feed back on Certification Course "AUTOCAD"

Timestamp	Score	1.Email Id	2.Roll Number	3.Name of the participent	4 Name of the college	5.Semester & Section	6. Is the course met your	7. How would you rate th	8. Speaker lectur is Clear	9. Suggestions If any
11/30/2022 15:01:40	13	229Y5A0316@ksrmce.ac.in	229Y5A0316	DHANYASI CHARAN KUMAR	KSRM	III Sem & B-S	Strongly Agree	Good	Yes	-
11/30/2022 14:23:01	12	229Y5A0317@ksrmce.ac.in	229Y5A0317	DUDEKULA AMEER BASHA	KSRM	III Sem & B-S	Strongly Agree	Excellent	Yes	-
11/30/2022 16:31:41	11	229Y5A0318@ksrmce.ac.in	229Y5A0318	DUDEKULA USMAN	KSRM	III Sem & B-S	Strongly Agree	Good	Yes	-
11/30/2022 14:32:13	12	229Y5A0319@ksrmce.ac.in	229Y5A0319	EBBILI PRAMOD	KSRM	III Sem & B/S	Strongly Agree	Excellent	Yes	-
11/30/2022 14:32:40	13	229Y5A0320@ksrmce.ac.in	229Y5A0320	GATTA VENKATA SIVA	KSRM	III Sem & B-S	Strongly Agree	Excellent	Yes	Increase the practice hours and more problems
11/30/2022 14:37:27	15	229Y5A0322@ksrmce.ac.in	229Y5A0322	IMMAREDDY VENKATA SUBBA REDDY	KSRM	III Sem & B-S	Strongly Agree	Excellent	Yes	-
12/1/2022 14:58:38	16	229Y5A0323@ksrmce.ac.in	229Y5A0323	KANAKADANDI VENKATA SAI KUMAR	KSRM	III Sem & B-S	Strongly Agree	Excellent	Yes	-
11/30/2022 14:08:15	14	229Y5A0326@ksrmce.ac.in	229Y5A0326	KUNCHAPU RAMESH	KSRM	III Sem & B-S	Strongly Agree	Excellent	Yes	-
12/1/2022 15:26:39	12	229Y5A0327@ksrmce.ac.in	229Y5A0327	KUTHALA ADARSHA	KSRM	III Sem & B/S	Agree	Excellent	Yes	No
11/30/2022 15:52:29	16	229Y5A0328@ksrmce.ac.in	229Y5A0328	M RAMESH	KSRM	III Sem & B-S	Strongly Agree	Excellent	Yes	-
11/30/2022 15:59:04	15	229Y5A0329@ksrmce.ac.in	229Y5A0329	MADANAPURI YUGANDHAR	KSRM	III Sem & B-S	Strongly Agree	Excellent	Yes	-
11/30/2022 16:05:42	14	229Y5A0330@ksrmce.ac.in	229Y5A0330	MARAM RUTWIK MANI KANTH	KSRM	III Sem & B-S	Strongly Agree	Excellent	Yes	No
11/30/2022 18:12:22	13	229Y5A0331@ksrmce.ac.in	229Y5A0331	MILLULLAGARI MANSOOR BASHA	KSRM	III Sem & B-S	Strongly Agree	Excellent	Yes	-
11/30/2022 18:57:50	16	229Y5A0332@ksrmce.ac.in	229Y5A0332	MOOD ABHILASH NAIK	KSRM	III Sem & B/S	Strongly Agree	Excellent	Yes	-
12/1/2022 18:59:05	13	229Y5A0333@ksrmce.ac.in	229Y5A0333	NAGIRIDONE MURALI KRISHNA	KSRM	III Sem & B-S	Strongly Agree	Excellent	Yes	More Practical Problems
11/30/2022 18:59:13	12	229Y5A0334@ksrmce.ac.in	229Y5A0334	P ARAVIND	KSRM	III Sem & B-S	Strongly Agree	Excellent	Yes	-
11/30/2022 19:25:08	11	229Y5A0335@ksrmce.ac.in	229Y5A0335	PAIDIPALEM SHAMEER BASHA	KSRM	III Sem & B/S	Strongly Agree	Good	Yes	No
11/30/2022 19:32:20	12	229Y5A0336@ksrmce.ac.in	229Y5A0336	PALLI MALLIKARJUNA	KSRM	III Sem & B-S	Strongly Agree	Excellent	Yes	-
12/1/2022 19:43:26	13	229Y5A0337@ksrmce.ac.in	229Y5A0337	PASALA UDAY KUMAR	KSRM	III Sem & B-S	Strongly Agree	Excellent	Yes	-
12/1/2022 19:46:53	15	229Y5A0338@ksrmce.ac.in	229Y5A0338	PASAM LOKCHAND YADAV	KSRM	III Sem & B/S	Strongly Agree	Excellent	Yes	-
12/1/2022 19:47:32	16	229Y5A0339@ksrmce.ac.in	229Y5A0339	PEETLA HAREESH	KSRM	III Sem & B-S	Strongly Agree	Excellent	Yes	-
11/30/2022 19:50:17	14	229Y5A0340@ksrmce.ac.in	229Y5A0340	PERUGU NARESH BABU YADAV	KSRM	III Sem & B-S	Strongly Agree	Good	Yes	No
11/30/2022 19:54:23	12	229Y5A0341@ksrmce.ac.in	229Y5A0341	PITTALA SARATH SAI	KSRM	III Sem & B-S	Strongly Agree	Excellent	Yes	-
11/30/2022 19:55:43	16	229Y5A0342@ksrmce.ac.in	229Y5A0342	POLIMERA PAVAN KUMAR	KSRM	III Sem & B-S	Agree	Good	Yes	-
11/30/2022 19:56:38	15	229Y5A0343@ksrmce.ac.in	229Y5A0343	RABBU MURALIKRISHNA	KSRM	III Sem & B-S	Strongly Agree	Excellent	Yes	No
11/30/2022 19:57:56	14	229Y5A0344@ksrmce.ac.in	229Y5A0344	RAGI MADHU	KSRM	III Sem & B-S	Strongly Agree	Excellent	Yes	-
11/30/2022 19:59:11	13	229Y5A0345@ksrmce.ac.in	229Y5A0345	SAYAVARAPU RAJENDRA	KSRM	III Sem & B-S	Strongly Agree	Good	Yes	-
11/30/2022 20:01:20	16	229Y5A0346@ksrmce.ac.in	229Y5A0346	SHAIK HAMER KAMID	KSRM	III Sem & B/S	Strongly Agree	Excellent	Yes	-
11/30/2022 20:05:04	13	229Y5A0347@ksrmce.ac.in	229Y5A0347	SREERAM SIVA	KSRM	III Sem & B-S	Strongly Agree	Excellent	Yes	-
12/1/2022 15:09:01	12	229Y5A0348@ksrmce.ac.in	229Y5A0348	SHAIK MOHAMMED SADIQ	KSRM	III Sem & B-S	Agree	Excellent	Yes	-
12/1/2022 6:10:03	11	229Y5A0349@ksrmce.ac.in	229Y5A0349	SHAIK NAGOOR BASHA	KSRM	III Sem & B-S	Strongly Agree	Good	Yes	No
11/30/2022 20:16:45	12	229Y5A0350@ksrmce.ac.in	229Y5A0350	SREERAM SIVA	KSRM	III Sem & B-S	Strongly Agree	Excellent	Yes	-
11/30/2022 16:16:55	13	229Y5A0351@ksrmce.ac.in	229Y5A0351	SUGALI SHIVAJI NAIK	KSRM	III Sem & B-S	Strongly Agree	Excellent	Yes	-
11/30/2022 20:18:23	15	229Y5A0352@ksrmce.ac.in	229Y5A0352	SYED MOHAMMED ABDULLA ADIL	KSRM	III Sem & B-S	Strongly Agree	Excellent	Yes	-
11/30/2022 20:20:29	16	229Y5A0353@ksrmce.ac.in	229Y5A0353	TALARI CHARAN RAJ	KSRM	III Sem & B-S	Strongly Agree	Excellent	Yes	-
11/30/2022 19:25:50	14	229Y5A0354@ksrmce.ac.in	229Y5A0354	THUMMALURU MAHESH	KSRM	III Sem & B-S	Strongly Agree	Good	Yes	-

Feed back on Certification Course "AUTOCAD"

Timestamp	Score	1.Email Id	2.Roll Number	3.Name of the participent	4. Name of the college	5.Semester & Section	6. Is the course met your	7. How would you rate th	8. Speaker lectur is Clea	9. Suggestions If any
11/30/2022 20:28:59	12	229Y5A0356@ksrmce.ac.in	229Y5A0356	VADDE UPENDRA	KSRM	III Sem & B-S	Strongly Agree	Excellent	Yes	-
11/30/2022 18:32:26	16	229Y5A0357@ksrmce.ac.in	229Y5A0357	YAMIKA HARI BABU	KSRM	III Sem & B-S	Agree	Excellent	Yes	-

Coordinator

HoD

Professor & Head
Department of Mechnical Engineering
K.S.R.M. College of Engineering
KADAPA - 516 003.

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA-516003
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
CERTIFICATION COURSE ON
AUTO CAD FROM 14/11/2022 TO 30/11/2022
AWARD LIST

S.No	Roll Number	Name of the Student	Marks Obtained
1	229Y5A0316	DHANYASI CHARAN KUMAR	13
2	229Y5A0317	DUDEKULA AMEER BASHA	12
3	229Y5A0318	DUDEKULA USMAN	11
4	229Y5A0319	EBBILI PRAMOD	12
5	229Y5A0320	GATTA VENKATA SIVA	13
6	229Y5A0322	IMMAREDDY VENKATA SUBBA REDDY	15
7	229Y5A0323	KANAKADANDI VENKATA SAI KUMAR	16
8	229Y5A0326	KUNCHAPU RAMESH	14
9	229Y5A0327	KUTHALA ADARSHA	12
10	229Y5A0328	M RAMESH	16
11	229Y5A0329	MADANAPURI YUGANDHAR	15
12	229Y5A0330	MARAM RUTWIK MANI KANTH	14
13	229Y5A0331	MILLULLAGARI MANSOOR BASHA	13
14	229Y5A0332	MOOD ABHILASH NAIK	16
15	229Y5A0333	NAGIRIDONE MURALI KRISHNA	13
16	229Y5A0334	P ARAVIND	12
17	229Y5A0335	PAIDIPALEM SHAMEER BASHA	11
18	229Y5A0336	PALLI MALLIKARJUNA	12
19	229Y5A0337	PASALA UDAY KUMAR	13
20	229Y5A0338	PASAM LOKCHAND YADAV	15
21	229Y5A0339	PEETLA HAREESH	16
22	229Y5A0340	PERUGU NARESH BABU YADAV	14
23	229Y5A0341	PITTALA SARATH SAI	12
24	229Y5A0342	POLIMERA PAVAN KUMAR	16
25	229Y5A0343	RABBU MURALIKRISHNA	15
26	229Y5A0344	RAGI MADHU	14
27	229Y5A0345	SAYAVARAPU RAJENDRA	13
28	229Y5A0346	SHAIK HAMER KAMID	16
29	229Y5A0347	SREERAM SIVA	13
30	229Y5A0348	SHAIK MOHAMMED SADIQ	12
31	229Y5A0349	SHAIK NAGOOR BASHA	11
32	229Y5A0350	SREERAM SIVA	12
33	229Y5A0351	SUGALI SHIVAJI NAIK	13
34	229Y5A0352	SYED MOHAMMED ABDULLA ADIL	15

35	229Y5A0353	TALARI CHARAN RAJ	16
36	229Y5A0354	THUMMALURU MAHESH	14
37	229Y5A0356	VADDE UPENDRA	12
38	229Y5A0357	YAMIKA HARI BABU	16

Coordinator

HoD

Professor & Head
Department of Mechnical Engineering
K.S.R.M. College of Engineering
KADAPA - 516 003.

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA-516003
DEPARTMENT OF MECHANICAL ENGINEERING
VALUE ADDED /CERTIFICATE COURSE ON
AUTO CAD
FROM 14/11/22 TO 30/11/2022
ASSESSMENT TEST

12/20

Roll Number: 229Y5A0356 **Name of the Student:** V. upendra

Time: 20 Min **(Objective Questions)** **Max.Marks: 20**

Note: Answer the following Questions and each question carries **one** mark.

1. What does the "CAD" in AutoCAD stand for? [b] ✓
   a) Computer-Aided Drawing
   b) Computer-Aided Design
   c) Computer-Aided Drafting
   d) Computer-Assisted Drawing

2. Which of the following is a command used to draw a rectangle? [c] ✓
   a) LINE
   b) POLYLINE
   c) RECTANGLE
   d) CIRCLE

3. The "Polar Tracking" feature in AutoCAD is used for: [c] ✗
   a) Tracking the movement of the mouse cursor
   b) Drawing precise angles and distances
   c) Applying polarized filters to drawings
   d) Tracking global positioning

4. Which command is used to create an exact copy of selected objects? [b] ✓
   a) DUPLICATE
   b) COPY
   c) CLONE
   d) REPLICATE

5. What is the purpose of the "HATCH" command in AutoCAD? [b] ✓
   a) Drawing dashed lines
   b) Creating text annotations
   c) Adding patterns or solid fills to enclosed areas
   d) Drawing circles and ellipses

6. The "Fillet" command in AutoCAD is used to: [a] ✓
   a) Add filigree designs to drawings
   b) Create rounded corners between lines or arcs
   c) Remove unwanted filaments from drawings
   d) Generate file links for external references

c) Create 3D layers for modeling
d) Merge objects into a single layer

15. How can you draw a construction line in AutoCAD? [b]
a) Using the "LINE" command with a specific line type
b) Using the "XLINE" command
c) Drawing a dashed line with the "POLYLINE" command
d) Drawing a line and setting its transparency

16. The "DIMENSION" command in AutoCAD is used to: [d]
a) Draw lines with specific dimensions
b) Create three-dimensional objects
c) Add text annotations to drawings
d) Add dimension lines and measurements

17. What is the purpose of the "SCALE" command? [a]
a) To resize selected objects proportionally
b) To change the drawing's scale on the paper
c) To adjust the drawing's dimensions
d) To apply different linetypes to objects

18. How can you create a leader annotation in AutoCAD? [d]
a) Using the "TEXT" command
b) Using the "ANNOTATE" command
c) Using the "DIMENSION" command
d) Using the "LEADER" command

19. The "STRETCH" command in AutoCAD is used to: [c]
a) Resize objects proportionally
b) Modify the shape of selected objects
c) Increase the length of dimension lines
d) Apply a stretch pattern to objects

20. Which command is used to draw a circle in AutoCAD? [c]
a) ELLIPSE
b) CURVE
c) CIRCLE
d) ARC

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA-516003
DEPARTMENT OF MECHANICAL ENGINEERING
VALUE ADDED /CERTIFICATE COURSE ON
AUTO CAD
FROM 14/11/22 TO 30/11/2022
ASSESSMENT TEST

13/20

Roll Number: 229Y5A0316 **Name of the Student:** D. Charan Kumar

Time: 20 Min **(Objective Questions)** **Max.Marks: 20**

Note: Answer the following Questions and each question carries **one** mark.

1. What does the "CAD" in AutoCAD stand for? [b]
   a) Computer-Aided Drawing
   b) Computer-Aided Design
   c) Computer-Aided Drafting
   d) Computer-Assisted Drawing

2. Which of the following is a command used to draw a rectangle? [c]
   a) LINE
   b) POLYLINE
   c) RECTANGLE
   d) CIRCLE

3. The "Polar Tracking" feature in AutoCAD is used for: [d]
   a) Tracking the movement of the mouse cursor
   b) Drawing precise angles and distances
   c) Applying polarized filters to drawings
   d) Tracking global positioning

4. Which command is used to create an exact copy of selected objects? [b]
   a) DUPLICATE
   b) COPY
   c) CLONE
   d) REPLICATE

5. What is the purpose of the "HATCH" command in AutoCAD? [b]
   a) Drawing dashed lines
   b) Creating text annotations
   c) Adding patterns or solid fills to enclosed areas
   d) Drawing circles and ellipses

6. The "Fillet" command in AutoCAD is used to: [c]
   a) Add filigree designs to drawings
   b) Create rounded corners between lines or arcs
   c) Remove unwanted filaments from drawings
   d) Generate file links for external references

c) Create 3D layers for modeling
d) Merge objects into a single layer

15. How can you draw a construction line in AutoCAD? [b]
a) Using the "LINE" command with a specific line type
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c) Drawing a dashed line with the "POLYLINE" command
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b) Using the "ANNOTATE" command
c) Using the "DIMENSION" command
d) Using the "LEADER" command

19. The "STRETCH" command in AutoCAD is used to: [C]
a) Resize objects proportionally
b) Modify the shape of selected objects
c) Increase the length of dimension lines
d) Apply a stretch pattern to objects

20. Which command is used to draw a circle in AutoCAD? [C]
a) ELLIPSE
b) CURVE
c) CIRCLE
d) ARC

K.S.R.M. COLLEGE OF ENGINEERING (AUTONOMOUS), KADAPA-516003
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AUTO CAD
FROM 14/11/22 TO 30/11/2022
ASSESSMENT TEST

12/20

Roll Number: 229Y5A0317 **Name of the Student:** D. Ameer Basha

Time: 20 Min **(Objective Questions)** **Max.Marks: 20**

Note: Answer the following Questions and each question carries **one** mark.

1. What does the "CAD" in AutoCAD stand for? [b]
   a) Computer-Aided Drawing
   b) Computer-Aided Design
   c) Computer-Aided Drafting
   d) Computer-Assisted Drawing

2. Which of the following is a command used to draw a rectangle? [C]
   a) LINE
   b) POLYLINE
   c) RECTANGLE
   d) CIRCLE

3. The "Polar Tracking" feature in AutoCAD is used for: [C]
   a) Tracking the movement of the mouse cursor
   b) Drawing precise angles and distances
   c) Applying polarized filters to drawings
   d) Tracking global positioning

4. Which command is used to create an exact copy of selected objects? [b.]
   a) DUPLICATE
   b) COPY
   c) CLONE
   d) REPLICATE

5. What is the purpose of the "HATCH" command in AutoCAD? [b]
   a) Drawing dashed lines
   b) Creating text annotations
   c) Adding patterns or solid fills to enclosed areas
   d) Drawing circles and ellipses

6. The "Fillet" command in AutoCAD is used to: [b]
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c) Using the "DIMENSION" command
d) Using the "LEADER" command

19. The "STRETCH" command in AutoCAD is used to: [b]
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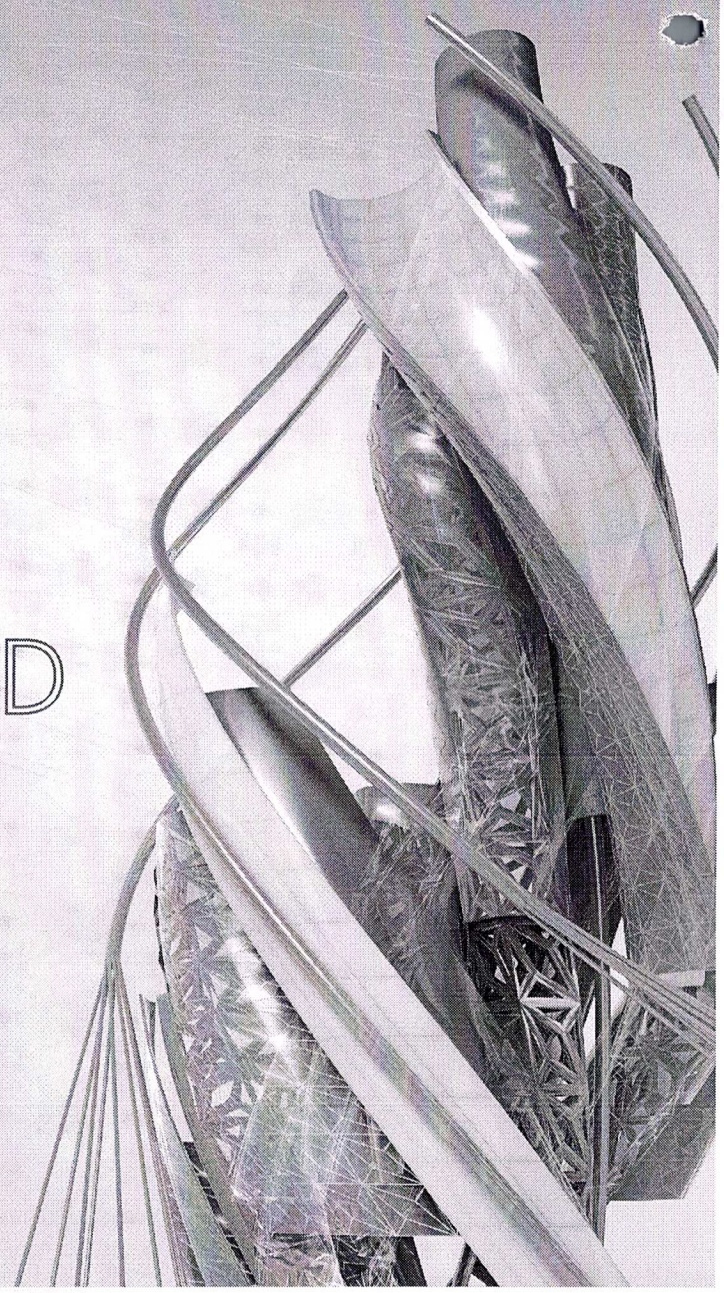
c) Increase the length of dimension lines
d) Apply a stretch pattern to objects

20. Which command is used to draw a circle in AutoCAD? [C]
a) ELLIPSE
b) CURVE
c) CIRCLE
d) ARC

AUTOCAD®

LEARN ABOUT AUTOCAD

An Introduction to AutoCAD for Beginners

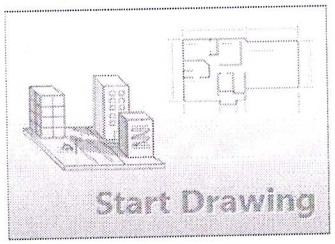


AUTODESK.

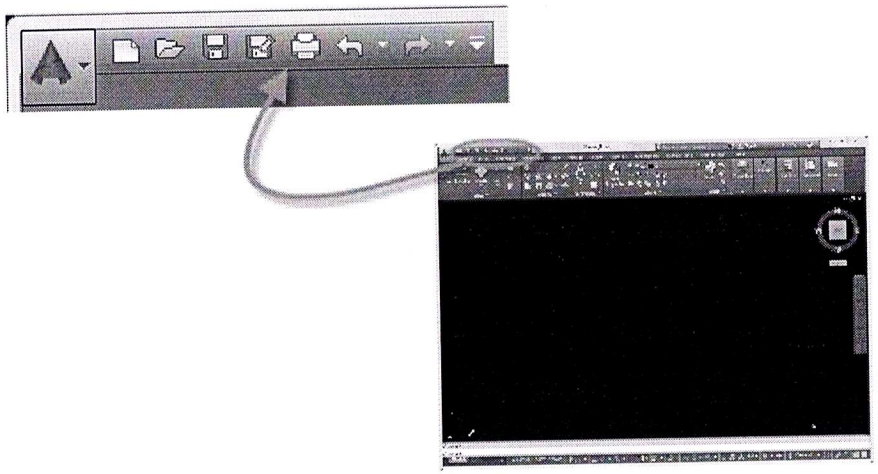
Basics

Review the basic AutoCAD controls.

After you launch AutoCAD, click the Start Drawing button to begin a new drawing.



AutoCAD includes a standard tabbed ribbon across the top of the drawing area. You can access nearly all the commands presented in this guide from the **Home** tab. In addition, the Quick Access toolbar shown below includes familiar commands such as New, Open, Save, Print, Undo, and so on.



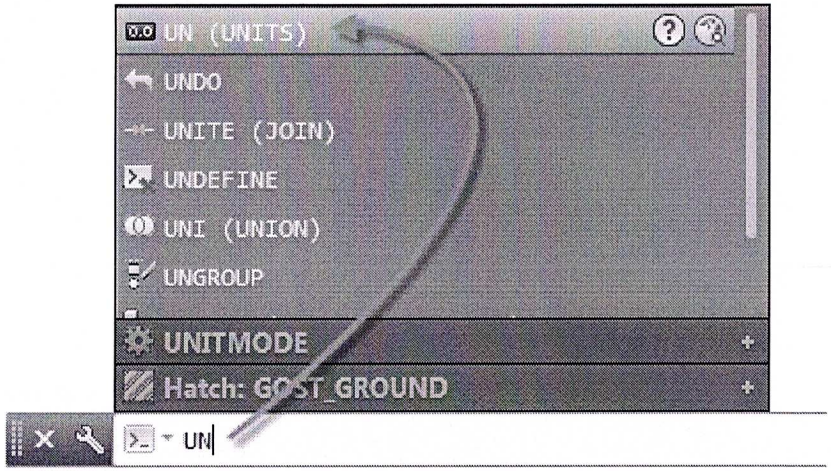
NOTE: *If the Home tab is not the current tab, go ahead and click it.*

The Command Window

At the heart of AutoCAD is the Command window, which is normally docked at the bottom of the application window. The Command window displays prompts, options, and messages.

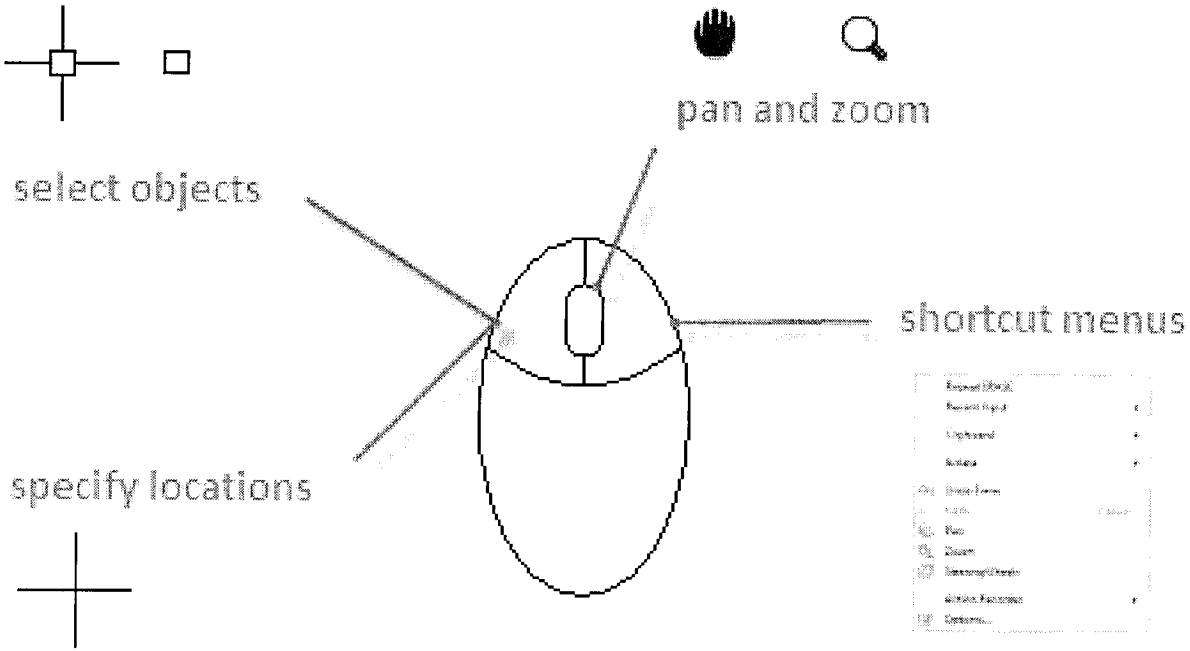
You can enter commands directly in the Command window instead of using the ribbon, toolbars, and menus. Many long-time AutoCAD users prefer this method.

Notice that as you start to type a command, an autocomplete menu appears. When several options are available, such as in the example below, make your choice by clicking the correct option or using the arrow keys and then pressing Enter or the Spacebar to confirm your selection.



The Mouse

Most people use a mouse as their pointing device, but other devices have equivalent controls.

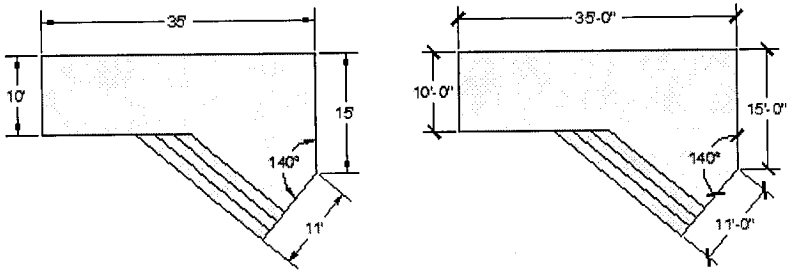


Here's a Tip:

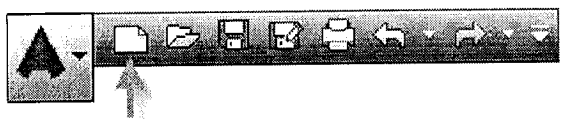
When looking for a command or option, try right-clicking. Depending on where your cursor is located, different menus will display relevant commands and options.

New Drawings

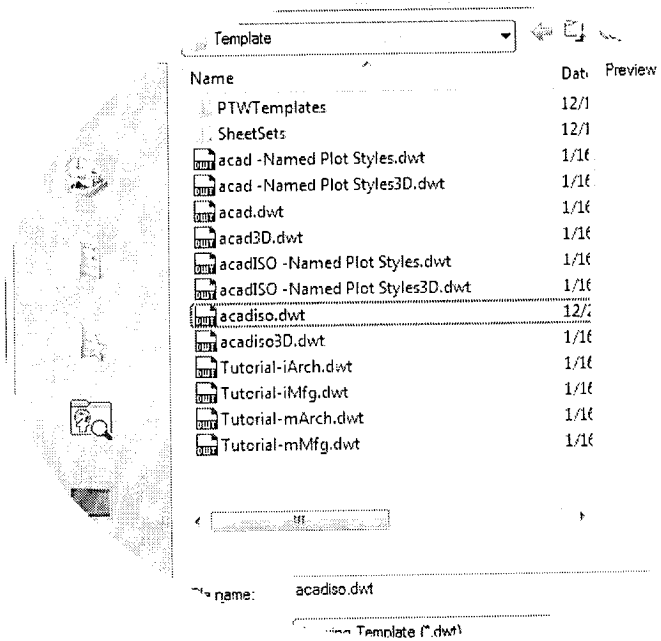
You can easily conform to industry or company standards by specifying settings for text, dimensions, linetypes, and several other features. For example, this backyard deck design displays two different dimension styles.



All these settings can be saved in a *drawing template* file. Click New to choose from several drawing template files:



- For imperial drawings that assume your units are inches, use *acad.dwt* or *acadlt.dwt*.
- For metric units that assume your units are millimeters, use *acadiso.dwt* or *acadltiso.dwt*.

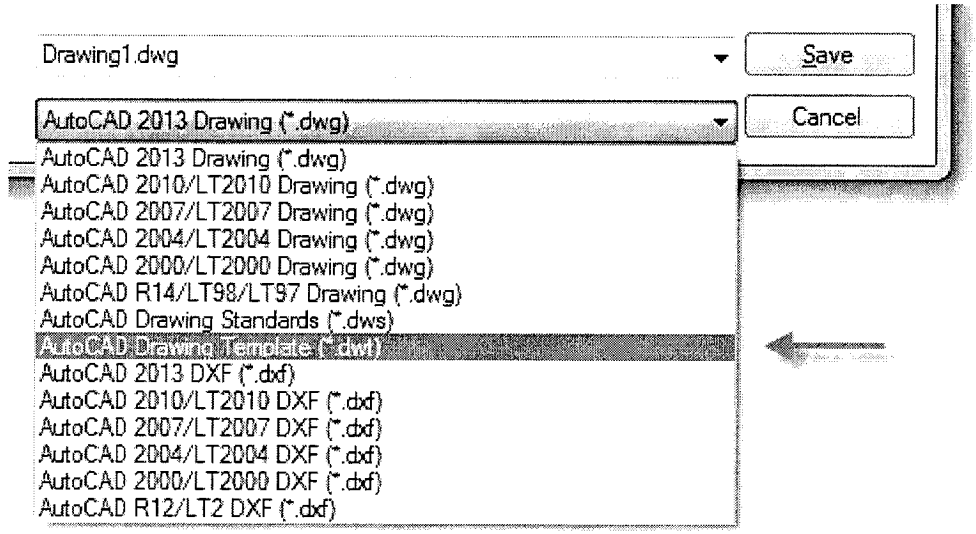


The "Tutorial" template files in the list are examples of the architectural or mechanical design templates using both imperial (i) and metric (m) measurements. You might want to experiment with them.

Most companies use drawing template files that conform to company standards, and they will often use different drawing template files depending on the project or client.

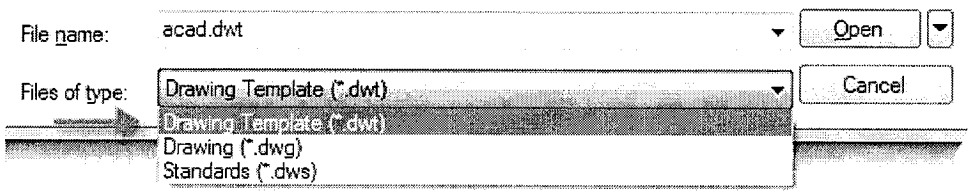
Create Your Own Drawing Template File

You can save any drawing (*.dwg*) file as a drawing template (*.dwt*) file. You can also open any existing drawing template file, modify it, and then save it again with a different filename if needed.



If you work independently, you can develop your drawing template files to suit your working preferences, adding settings for additional features as you become familiar with them.

To modify an existing drawing template file, click Open, specify Drawing Template (*.dwt) in the Select File dialog box, and choose the template file.

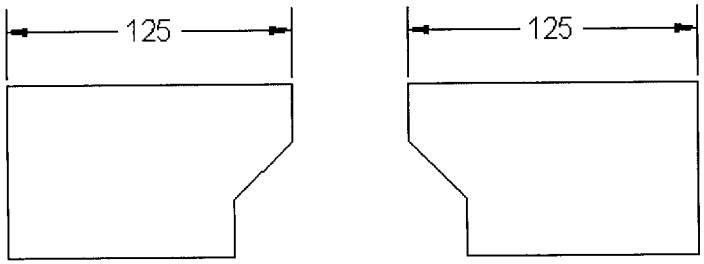


Important:

If your company has already established a set of drawing template files, check with your CAD manager before modifying any of them.

Units

When you first start a drawing, you need to decide what the length of one unit represents—an inch, a foot, a centimeter, a kilometer, or some other unit of length. For example, the objects below could represent two buildings that are each 125 feet long, or they could represent a section from a mechanical part that is measured in millimeters.



Unit Display Settings

After you decide what unit of length that you want to use, the **UNITS** command lets you control several unit display settings including the following:

- **Format (or Type):** For example, a decimal length of 6.5 can be set to display as a fractional length of 6-1/2 instead.
- **Precision:** For example, a decimal length of 6.5 can be set to display as 6.50, 6.500, or 6.5000.

If you plan to work in feet and inches, use the **UNITS** command to set the unit type to Architectural, and then when you create objects, specify their lengths in inches. If you plan to use metric units, leave the unit type set to Decimal. Changing the unit format and precision does not affect the internal precision of your drawing, it affects only how lengths, angles, and coordinates are displayed in the user interface.

Here's a Tip:

If you need to change the **UNITS** settings, make sure that you save the drawing as a drawing template file (.dwt). Otherwise, you will need to change the **UNITS** settings for each new drawing.

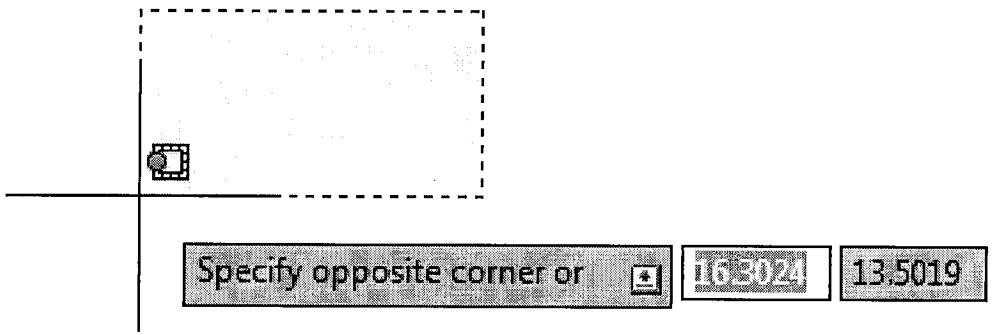
Model Scale

Always create your models at full size (1:1 scale). The term *model* refers to the geometry of your design. A *drawing* includes the model geometry along with the views, notes, dimensions, callouts, tables, and the title block displayed in the *layout*.

You can specify the scaling that is necessary to print a drawing on a standard-sized sheet later, when you create the layout.

Recommendations

- To open **Help** for information about the command in progress, press F1.
- To **repeat** the previous command, press Enter or the Spacebar.
- To see various **options**, select an object and right-click or right-click a user interface element.
- To **cancel** a command in progress or if you ever feel stuck, press Esc. For example, if you click in the drawing area before entering a command, you will see something like the following:



Here's a Tip:

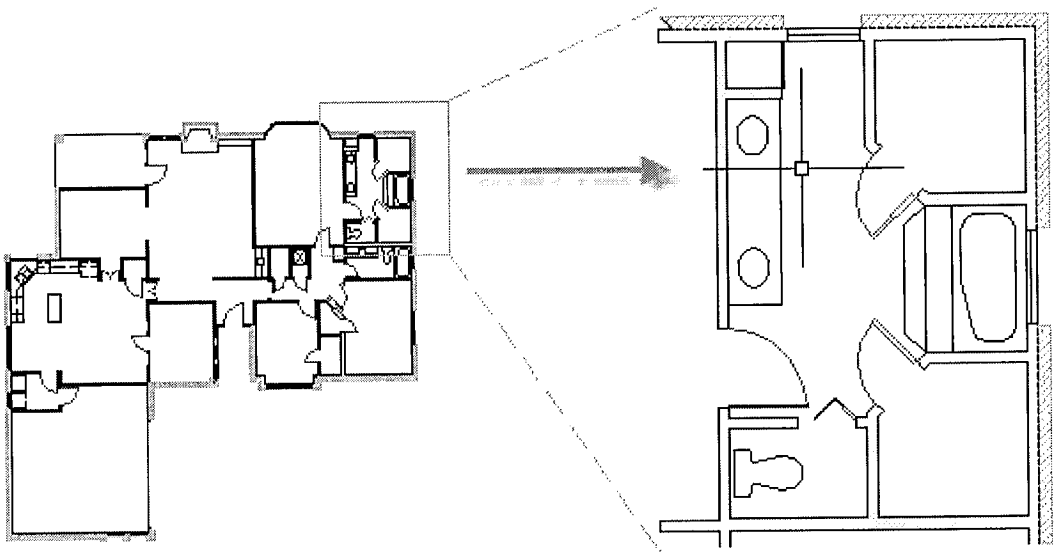
Press Esc to cancel this preselection operation.

Viewing

Zoom in on a drawing to better control the order of overlapping objects.

The easiest way to change your view is by using the mouse wheel.

- Zoom in or out by rolling the wheel.
- Pan a view in any direction by holding the wheel down while moving your mouse.
- Zoom in on a specific area for greater detail holding your mouse over the area and clicking the wheel twice.



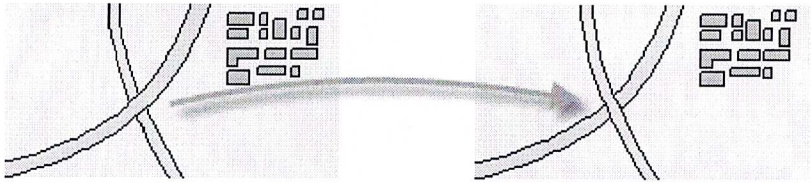
Here's a Tip:

When you zoom in or out, the location of the cursor is important. Think of your cursor as a magnifying glass. For example, if you position the cursor in the upper-right area of the floor plan as shown below, zooming in magnifies the dressing room without shifting the view.

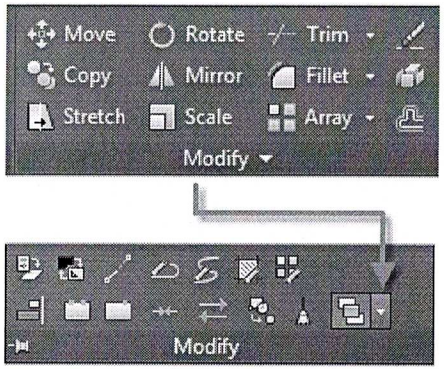
NOTE: *If you cannot zoom or pan any more, type* ***REGEN*** *in the Command window and press Enter. This command regenerates the drawing display and resets the extents available for panning and zooming.*

Overlapping Objects

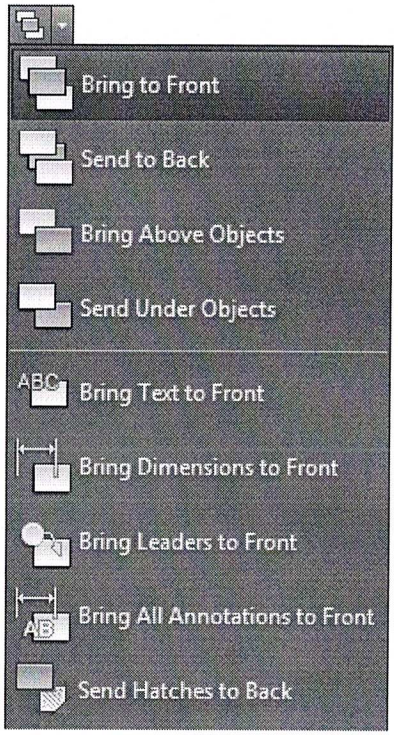
If you create objects that overlap, you might need to change which objects are displayed on top or in front of the others. For example, if you want the yellow highway to cross the blue river rather than the other way around, use the **DRAWORDER** command to reorder the objects.



You can access several draw order options from the Modify panel on the ribbon. Click to expand the Modify panel, and then click the down-arrow as shown below.



The draw order options that are listed include sending all hatches to the back, all text to the front, and so on.



Geometry

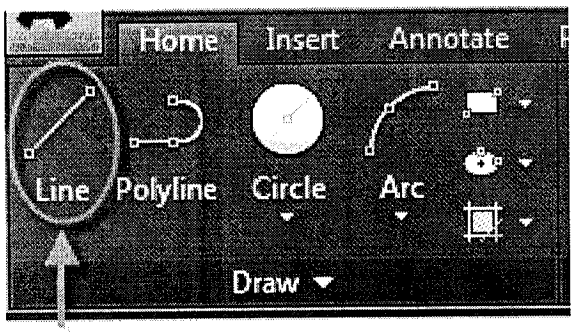
Create basic geometric objects such as lines, circles, and hatched areas.

You can create many different types of geometric objects in AutoCAD, but you only need to know a few of them for most 2D drawings.

NOTE: *If you want to simplify the display while creating geometric objects, press F12 to turn off dynamic input.*

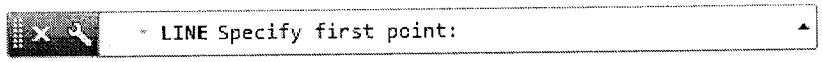
Lines

The line is the most basic and common object in AutoCAD drawings. To draw a line, click the Line tool.

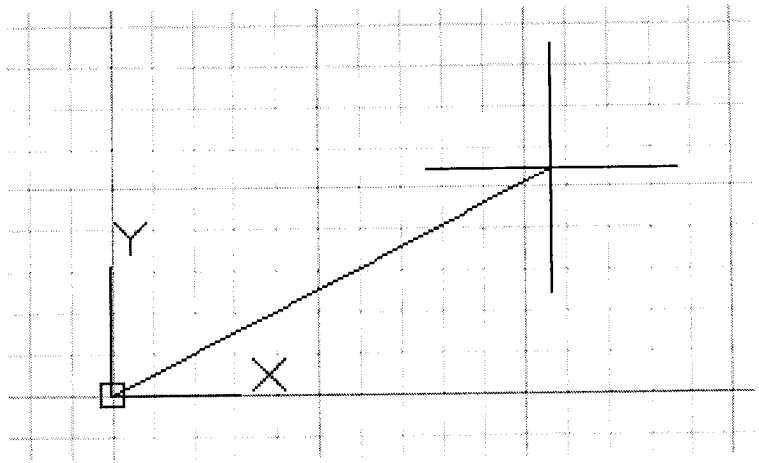


Alternatively, you can type **LINE** or just **L** in the Command window, and then press Enter or the Spacebar.

Notice the prompt in the Command window for a point location.



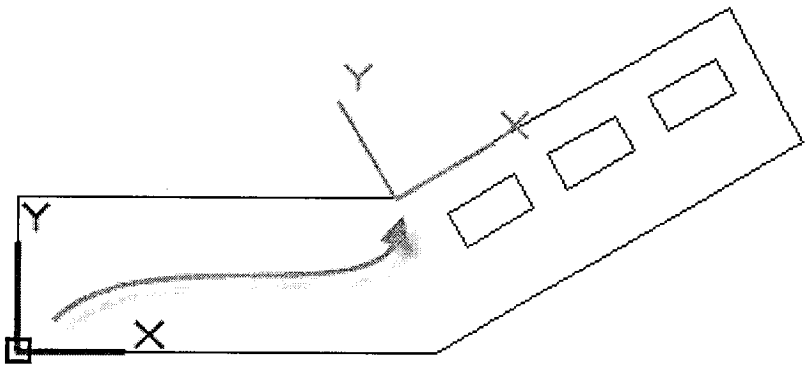
To specify the starting point for this line, you would type in the coordinates 0,0. It is a good idea to locate one corner of your model at 0,0, which is called the origin point. To locate additional points, you could specify additional X,Y coordinate locations in the drawing area, however more efficient methods for specifying points are available, and will be presented in the Precision topic.



After you specify the next point, the **LINE** command automatically repeats itself, and it keeps prompting you for additional points. Press Enter or the Spacebar to end the sequence.

The User Coordinate System

The user coordinate system (UCS) icon indicates the direction of the positive X and Y axis for any coordinates that you enter, and it also defines the horizontal and vertical directions in a drawing. In some 2D drawings, it can be convenient to click, drag, and rotate the UCS to change the origin point, and the horizontal and vertical directions.



Grid Display

Some people like working with grid lines as a reference, while others prefer working in a blank area. To turn off the grid display, press F7. Even with the grid turned off, you can force your cursor to snap to grid increments by pressing F9.

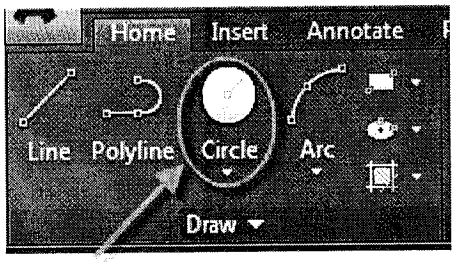
Lines as Construction Aids

Lines can serve as reference and construction geometry such as:

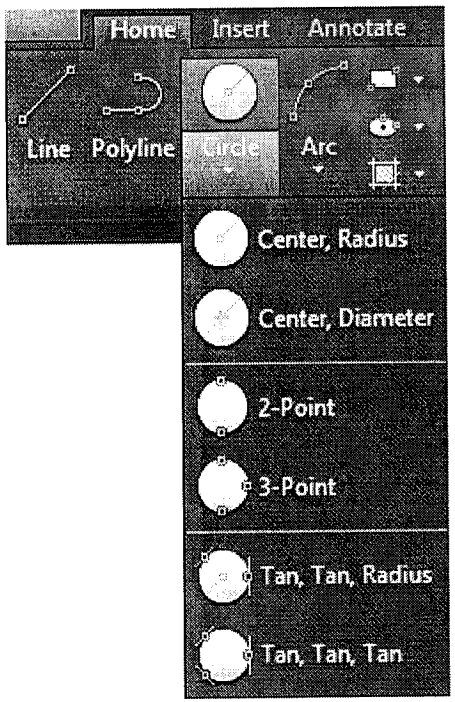
- Property line setbacks
- The mirror line of a symmetrical mechanical part
- Clearance lines to avoid interferences
- Traversal path lines

Circles

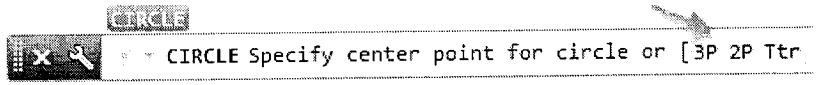
The default option of the **CIRCLE** command requires you to specify a center point and a radius.



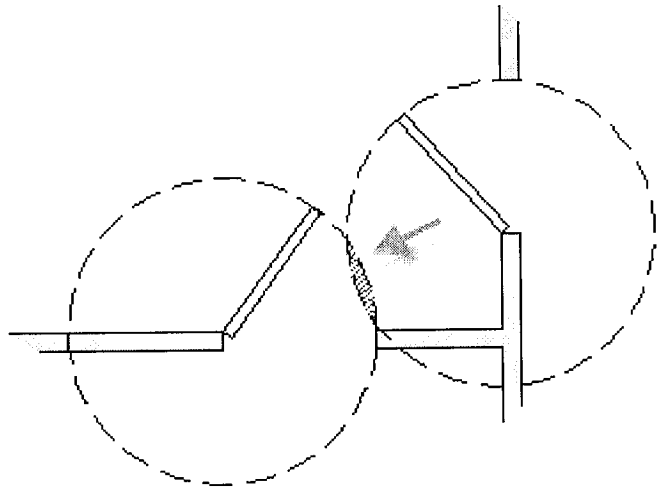
The other circle options are available from the drop-down:



Alternatively, you can also enter **CIRCLE** or just **C** in the Command window and click to choose an option. If you do, you can specify a center point, or you can click one of the highlighted command options as shown below.

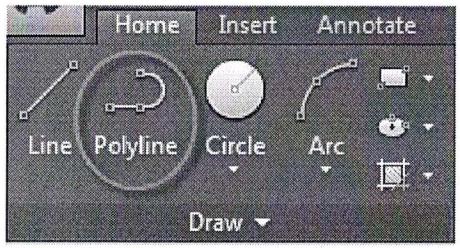


Circles can be useful as reference geometry. For example, you can see that the two doors in the illustration can interfere with each other.



Polylines and Rectangles

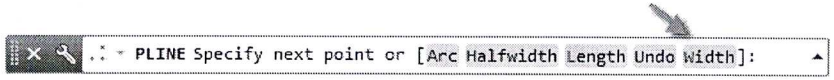
A polyline is a connected sequence of line or arc segments that is created as a single object.



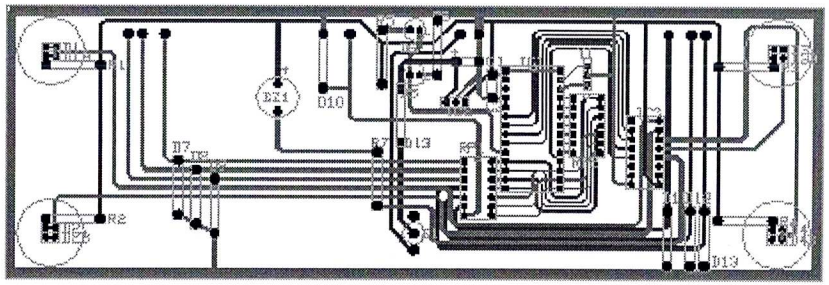
Use the **PLINE** command to create open or closed polylines for:

- Geometry that requires fixed-width segments
- Continuous paths for which you need to know the total length
- Contour lines for topographic maps and isobaric data
- Wiring diagrams and traces on printed circuit boards
- Process and piping diagrams

Polylines can have a constant width or they can have different starting and ending widths. After you specify the first point of the polyline, you can use the Width option to specify the width of all subsequently created segments. You can change the width value at any time, even as you create new segments.



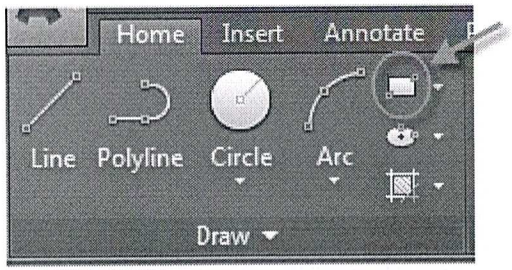
Here is an example of a printed circuit board in which the traces were created with wide polylines. The landing pads were created with the **DONUT** command.



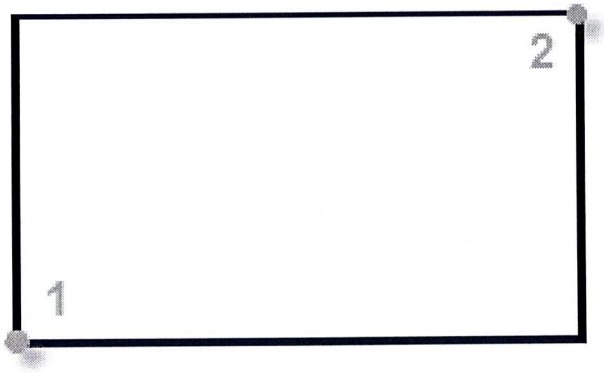
Polylines and Rectangles (continued)

Polylines can have different starting and ending widths for each segment as shown here:

A fast way to create closed rectangular polylines is to use the **RECTANG** command (enter **REC** in the Command window).

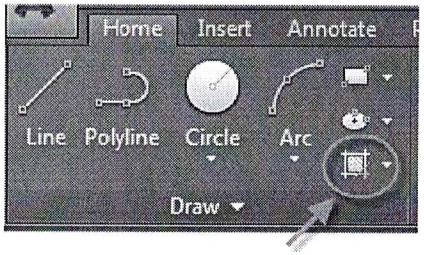


Simply click two diagonal points for the rectangle as illustrated. If you use this method, turn on grid snap (F9) for precision.



Hatches and Fills

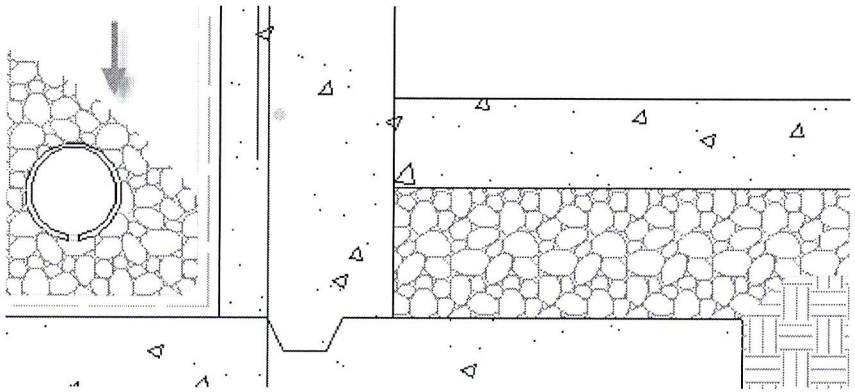
In AutoCAD, a hatch is a single, compound object that covers a specified area with a pattern of lines, dots, shapes, a solid fill color, or a gradient fill.



When you start the **HATCH** command, the ribbon temporarily displays the Hatch Creation tab. On this tab, you can choose from over 70 industry-standard imperial and ISO hatch patterns along with many specialized options.

The simplest procedure is to choose a hatch pattern and scale from the ribbon, and click within any area that is completely enclosed by objects. You must specify the scale factor for the hatch in order to control its size and spacing.

After you create a hatch, you can move the bounding objects to adjust the hatch area, or you can delete one or more of the bounding objects to create partially bounded hatches:

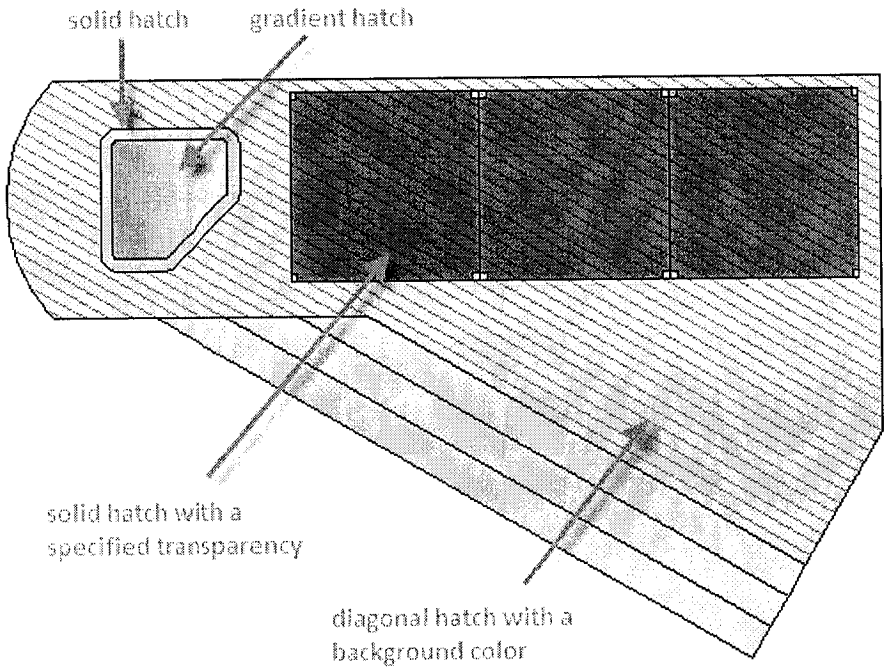


Here's a Tip:

If you set a solid or gradient fill hatch pattern, also consider setting a transparency level on the Hatch Creation tab for interesting overlap effects.

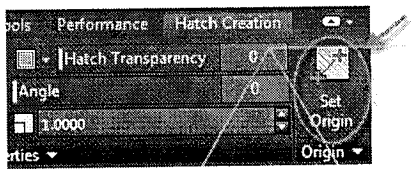
Hatches and Fills (continued)

Here are some examples of how you can use solid-fill hatches:



Here's a Tip:

If you need to align the pattern in a hatch, which might be the case with the decking boards above, use the Set Origin option to specify an alignment point.



NOTE: *If an area is not completely enclosed, red circles appear to indicate potential gaps. Enter* ***REDRAW*** *in the Command window to dismiss the red circles.*

Precision

Ensure the precision required for your models.

There are several precision features available, including:

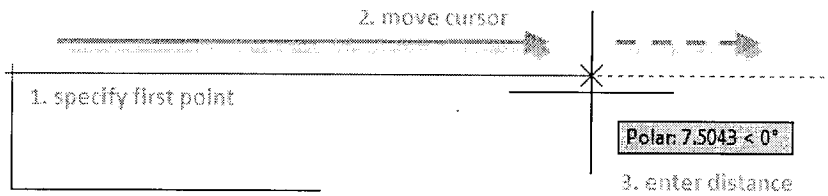
- **Polar tracking:** Snap to the closest preset angle and specify a distance along that angle.
- **Locking angles:** Lock to a single, specified angle and specify a distance along that angle.
- **Object snaps:** Snap to precise locations on existing objects, such as an endpoint of a polyline, the midpoint of a line, or the center point of a circle.
- **Grid snaps:** Snap to increments on a rectangular grid.
- **Coordinate entry:** Specify a location by its Cartesian or polar coordinates, either absolute or relative.

The three most commonly used features are polar tracking, locking angles, and object snaps.

Polar Tracking

When you need to specify a point, such as when you create a line, you can use polar tracking to guide the movement of your cursor in certain directions.

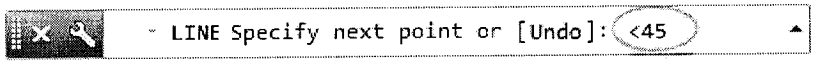
For example, after you specify the first point of the line below, move your cursor to the right, and then enter a distance in the Command window to specify a precise horizontal length for the line.



By default, polar tracking is turned on and guides your cursor in a horizontal or vertical direction (0 or 90 degrees).

Locking Angles

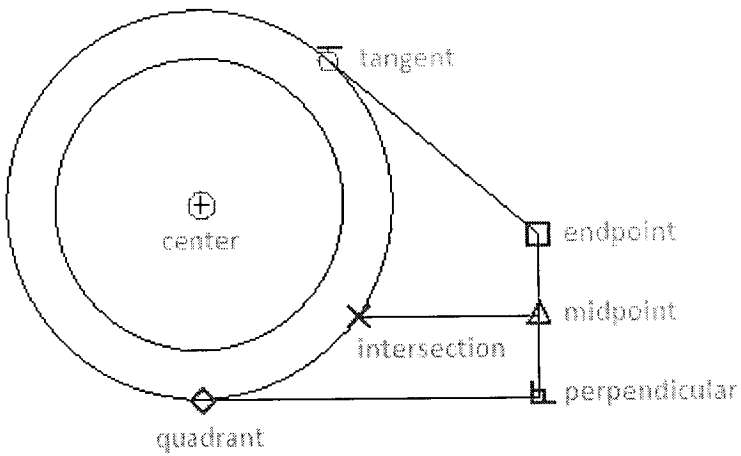
If you need to draw a line at a specified angle, you can lock the angle for the next point. For example, if the second point of a line needs to be created at a 45 degree angle, you would enter '<45' in the Command window.



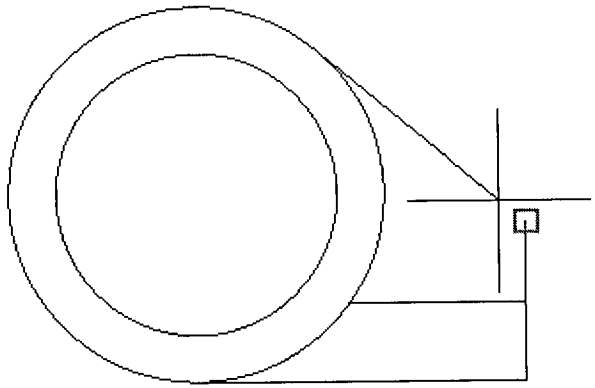
After you move your cursor in the desired direction along the 45-degree angle, you can enter the length of the line.

Object Snaps

By far, the most important way for you to specify precise locations on objects is to use object snaps. In the following illustration, several different kinds of object snaps are represented by markers.

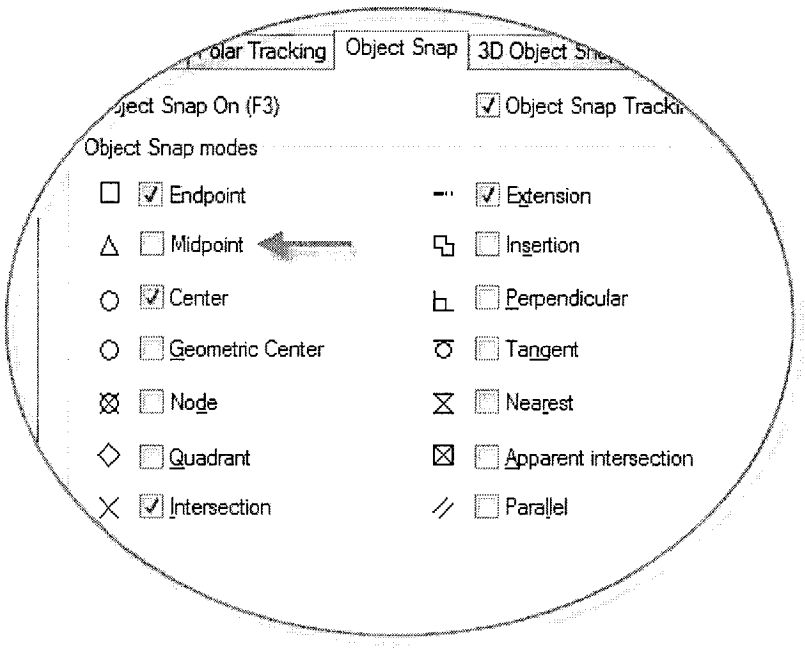


Object snaps become available during a command whenever AutoCAD prompts you to specify a point. For example, if you start a new line and move your cursor near the endpoint of an existing line, the cursor will automatically snap to it.



Set Default Object Snaps

Enter the **OSNAP** command to set the default object snaps, which are also called "running" object snaps. For example, you might find it useful to turn on the Midpoint object snap by default.

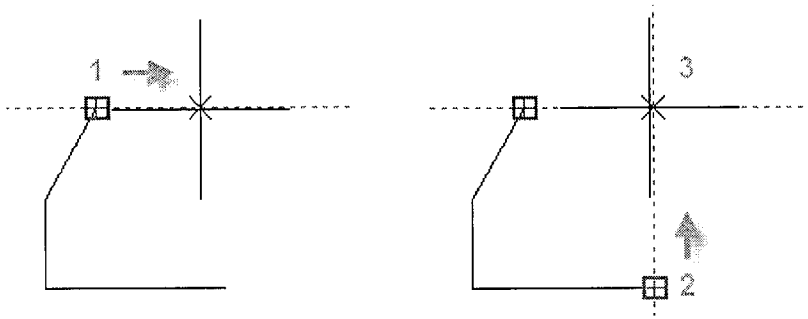


Recommendations

- At any prompt for a point, you can specify a single object snap that overrides all other object snap settings. Hold down Shift, right-click in the drawing area, and choose an object snap from the Object Snap menu. Then move the cursor to select a location on an object.
- Make sure that you zoom in close enough to avoid mistakes. In a densely populated model, snapping to the wrong object will result in an error that can propagate throughout your model.

Object Snap Tracking

During a command, you can align points both horizontally and vertically from object snap locations. In the following illustration, you first hover over endpoint 1 and then hover over endpoint 2. When you move your cursor near location 3, the cursor locks into the horizontal and vertical location shown.



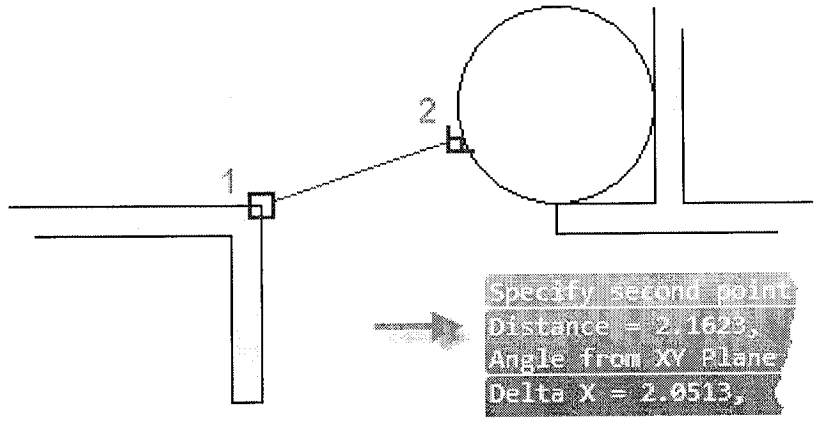
You can now finish creating the line, circle, or other object that you were creating from that location.

Verify Your Work

Recheck your geometry to catch mistakes early. Enter the **DIST** command (or just **DI**) to measure the distance between any two points in your model.

For example, you might need to find the clearance between two points shown, which might represent the corner of a wall and a small table, or perhaps a 2D section of a plastic part and a wire.

After you enter **DIST**, click the endpoint on the corner (1). Next, hold down Shift as you right-click, and then choose Perpendicular from the object snap menu. Finally, click the circle (2).



The number of decimal places and unit style displayed in the result is controlled by the **UNITS** command.

Handy Function Key Reference

All keyboard function keys have assignments in AutoCAD. The ones that are most commonly turned on and off are indicated with a key.

Key	Feature	Description
F1	Help	Displays Help for the active tooltip, command palette, or dialog box.
F2	Expanded History	Displays expanded command history in the Command Window.
F3	Object Snap	Turns object snap on and off.
F4	3D Object Snap	Turns on additional object snaps for 3D elements.
F5	Isoplane	Cycles through 2-1/2D isoplane settings.
F6	Dynamic UCS	Turns on UCS alignment with planar surfaces.
F7	Grid Display	Turns the grid display on and off.
F8	Ortho	Locks cursor movement to horizontal or vertical.
F9	Grid Snap	Restricts cursor movement to specified grid intervals.
F10	Polar Tracking	Guides cursor movement to specified angles.
F11	Object Snap Tracking	Tracks the cursor horizontally or vertically from object snap locations.
F12	Dynamic Input	Displays distances and angles near the cursor and accepts input as you use Tab between the fields.

NOTE: *F8 and F10 are mutually exclusive—turning either one on will turn the other one off.*