

1	Name of Syllabus	C. C. In AUTO CAD (101106)																																									
2	Max.Nos of Student	25 Students																																									
3	Duration	6 Months																																									
4	Type	Part Time																																									
5	Nos Of Days / Week	6 Days																																									
6	Nos Of Hours /Days	4 Hrs																																									
7	Space Required	Practical Lab = 300 Sq feet Class Room = 200 Sq feet TOTAL = 500 Sq feet																																									
8	Entry Qualification	S.S.C. appeared																																									
9	Objective Of Syllabus/ introduction	To make available AutoCAD with the capability of managing any type of engineering drawing.																																									
10	Employment Opportunity	a) Self Employment:- (1) Draughtsman- Draughtsman (Civil) & Draughtsman (Mechanical) can executive drafting & plotting work for the concern industries. (2) Engineers- Mechanical & Civil engineers, Architects & in concern industries/companies. (3) Architect can create design & drawing of their construction projects with wide variety of CAD facilities. (4) Designing drafting & printing new drawings. (5) Digitizing of old drawings. b) Wage Employment:- A person can work as a CAD operator in the office of consulting engineers architects & in concern industries/ companies.																																									
11	Teacher’s Qualification	1) Graduate/diploma in engineering preferably mechanical or civil engineering with in depth knowledge of CAD software with minimum experience of Two years.																																									
12	Training System	Training System Per Week <table><tr><th>Theory</th><th>Practical</th><th>Total</th></tr><tr><td>06 hrs</td><td>18 hrs</td><td>24 hrs</td></tr></table>							Theory	Practical	Total	06 hrs	18 hrs	24 hrs																													
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CURRICULUM

Theory - I - AUTO CAD

Fundamental of Computers & operating systems

- (1) **Introduction of Computer:** - Definition of electronic digital computer & their characteristics like Speed, Accuracy, Storage, Diligence and Automation & Versatility. Computers Micro, Mini, Main Frame, Super Computers, PC, PC-XT, PC-AT.
- (2) **Structure of Computer:** - Block diagram & functions of different units of computer.
- (3) **Computer Languages:** -Machine language, Assembly language & High level languages, Introduction to compilers & interpreters (definition & comparison). Overview of representation of data
- (4) **Input/Output Devices:** - Study of keyboard, VDU, Printer, Plotter, Mouse.
- (5) **Secondary Storage Devices:** - Tapes, Disks, Hard Disks, Floppy sectors, Tracks, Cylinders, Memory capacity, cartridge, backup tapes.
- (6) **Security & Safety Data:** -
Security: like passwords, write protections
Safety: like monthly, weekly backup, concept of virus & preventive measures.
- (7) **Introduction to Operating Systems:** -DOS ,introduction to LAN, Windows98, and introduction to NT, study of commonly used DOS internal and external commands like DIR, type, CLS, date, time, copy, del, erase, disk copy, format, disk comp, MD, CD, RD, backup, restore, copycon, deltree, attrib, creating simple batch file, edit command.

Introduction to Internet: -

- (8) Concept of Internet WWW, ISP, Internet Protocols, TCP/IP, HTTP, FTP, Telnet, browsers, Web Page.
- (9) Web surfing, sending & receiving E-mail, sending word document as an attachment.

Microsoft Windows 98 or NT or Higher: -

(10) The Windows Environment: -

Structure of a simple window, exploring the desktop, the start button, My computer, using help, taskbar, working with multiple windows, printing documents, menus, dialog boxes, icon, views & switching views, maximizing, minimizing, restoring, resizing, moving, closing window, parent & child window creating icons/shortcuts.

(11) Accessories: -

Notepad, WordPad, Paint, character map, clipboard viewer, media player, phone dialer, calculator.

(1) Customizing Windows: -

Setting colour, patterns, wallpapers & screen server date, time, mouse, keyboard.

(2) Managing file & Folders: -

Selecting multiple files/folders, using windows explorer, copy & moving files/folders, using the recycle bin by passing the recycle bin, globally creating / renaming files/folder opening documents.

(3) Working with Programmes: -

Starting & closing programmes, using run command, adding start menu program, using startup folder, starting program minimized, cut copy & paste operation, running MS-DOS application.

(4) Drawing: -CAD-2D

Start up methods, use of various functions keys.

Various modes in CAD, creating drawing environment, understanding co-ordinate system, types of co-ordinate.

Draw commands: Line, Ray, Constructing Line, Spine, Polly line, multiline.

Rectangle, polygon, circle, arc, ellipse, donut, point, commands.

Modify commands: copy, move, erase, oops, scale, rotate, stretch, lengthen, break, trim, extend, chamfer, fillet, mirror, offset, align explode, array commands, editing pollyline, editing multiline, listing properties, matching properties, setting drawing units, drawing limit format point style, text style, dimension style, multiline style.

Using creating & editing single line and multi line text.

Dimensioning technique commands (complete)

Block & w-block commands, patch boundary, region command, object property concepts, model space paper space concept, various zooming command, object snapping/tracking feature, display order, inquiry commands printing/plotting parameters, printing & plotting procedure, using scale in printing.

c) CAD-3D MODELING: -

Introduction to 3D drawing

Viewing 3D drawing-creating view ports, named view ports, hidden view, shade mode view, Ariel view, plan view, isometric view, orthographic view, floating view ports, display image commands.

Using co-ordinate system:- named UCS, orthographic move UCS, new UCS, using point filter.

Creating 3D solid- creating basic solid like box, cylinder etc. extrude, revolve, slice, section, interference, Boolean operation- union subtract, intersect command, creating 3D surface- 2D surface, 3D surface, 3D face, 3D mesh, revolved surface, tabulated surface, ruled surface, edge surface, extrude/ move/ offset/ delete/ rotate/ taper/ colour / copy / copy face command, 3D array, mirror 3D, rotate 3D command.

Rendering – rendering scene, adding background, using light effect, applying material & landscaping.

Practical –I - CAD-2D DRAWING

Sr. No.	Topic Name
1	<u>Drawing: - CAD-2D</u> Start up methods, use of various functions keys
	Various modes in CAD, creating drawing environment, understanding co-ordinate system, types of co-ordinate
	Draw commands: Line, Ray, Constructing Line, Spline, Poly line, multiline.
	Rectangle, polygon, circle, arc, ellipse, donut, point, commands
	Modify commands: copy, move, erase, oops, scale, rotate, stretch, lengthen, break, trim, extend, chamfer, fillet, mirror, offset, align explode, array commands, editing polyline, editing multiline, listing properties, matching properties, setting drawing units, drawing limit format point style, text style, dimension style, multiline style.
	Using creating & editing single line and multi line text.
	Dimensioning technique commands (complete) Block & w-block commands, patch boundary, region command, object property concepts, model space paper space concept, various zooming command, object snapping/tracking feature, display order, inquiry commands printing/plotting parameters, printing & plotting procedure, using scale in printing.

Practical - II - CAD-3D DRAWING

Sr. No.	Topic Name
1	<u>CAD-3D DRAWING:-</u> Introduction to 3D drawing
	Viewing 3D drawing-creating view ports, named view ports, hidden view, shade mode view, Ariel view, plan view, isometric view, orthographic view, floating view ports, display image commands.
	Using co-ordinate system:- named UCS, orthographic move UCS, new UCS, using point filter.
	Creating 3D solid- creating basic solid like box, cylinder etc. extrude, revolve, slice, section, interference, Boolean operation- union subtract, intersect command, creating 3D surface- 2D surface, 3D surface, 3D face, 3D mesh, revolved surface, tabulated surface, ruled surface, edge surface, extrude/ move/ offset/ delete/ rotate/ taper/ colour / copy / copy face command, 3D array, mirror 3D, rotate 3D command.
	Rendering – rendering scene, adding background, using light effect, applying material & landscaping.

LIST OF TOOLS/EQUIPMENTS/SOFTWARES:

Sr. No.	Description of tools/equipments/software	Nos. required
1.	Pentium based processor having minimum configuration <ul style="list-style-type: none">• Min.400 MHZ• 160 GB HDD• 1 GB RAM• 1.44 MB floppy drives• 48xCD-ROM drive• SVGA colour monitors with VGA (8 mb)	Four
2.	136 column dot matrix printer	One
3.	Desk/Ink Jet printer or plotter	One
4.	Windows 98 or NT or Higher version Auto CAD software, graphics simulation package	As required
5.	256 KBPS external modem	One

Reference Books :

1	Fundamental of Computers	Raja Raman
2	Reference manual of AUTOCAD	Autodesk
3	Computer Fundamental & Organisation	B.Ram
