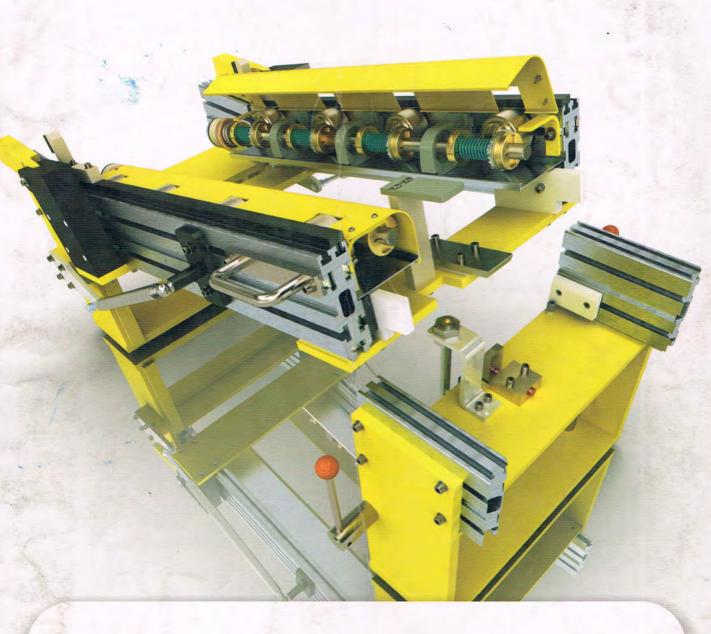


SolidWorks

Project Workbook



Look for the Authentic CADD Centre Hologram!

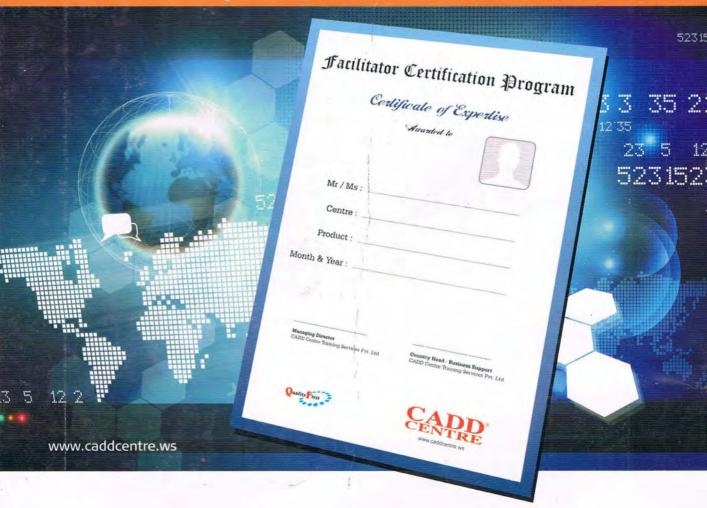


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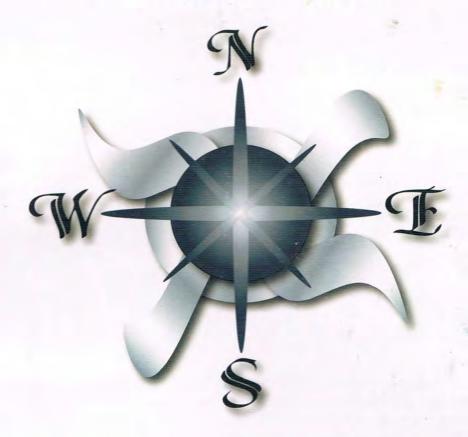
Corporate Office:

#91, Office No: 8C & 8D, 8th Floor, GEE GEE Crystal, Dr. Radhakrishnan Salai, Mylapore, Chennai - 600 004.

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Project Workbook SolidWorks

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Editor

CURRICULUM AND PRODUCT DEVELOPMENT TEAM

We appreciate your valuable feedback/suggestion on this courseware.

Kindly do mail it to us at : cpd@caddcentre.ws





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CCTSPLV12191111

This project manual aims to hone your skills in handling the software that you have trained with CADD Centre Training Services Pvt Ltd. We have endeavored on providing industrial applicability experience by combining smart exercises following industry standards wherever necessary/possible. For convenience, all sheets have followed third angle projection. All data essential for completing the project/exercises are available through orthographic views only.

Note the following as you work on these exercises.

- 1. Periodically save all your work in the destined folder. Write down the full path and file name on the top of each exercise sheet, in the specified column.
- 2. Each exercise has a stipulated period. Note down the time you took to complete the exercise on top of the exercise sheet.
- 3. If you are in doubt, please clarify with your project guide. Do not assume.
- 4. For standard parts refer Design Data Book.
- 5. Contact your project guide after completion of each project for correction.

If you would like to share your views and comments, please do write to us to the address given below or E-Mail us: cpd@caddcentre.ws



Curriculum and Product Development Team,
CADD Centre Training Services Private Limited,
No.91, Dr. Radhakrishnan Salai,
Gee Gee Crystal, 8th Floor, Office No. 8C & 8D,
Mylapore, Chennai- 600004
E-mail: cpd@caddcentre.ws

Sketcher

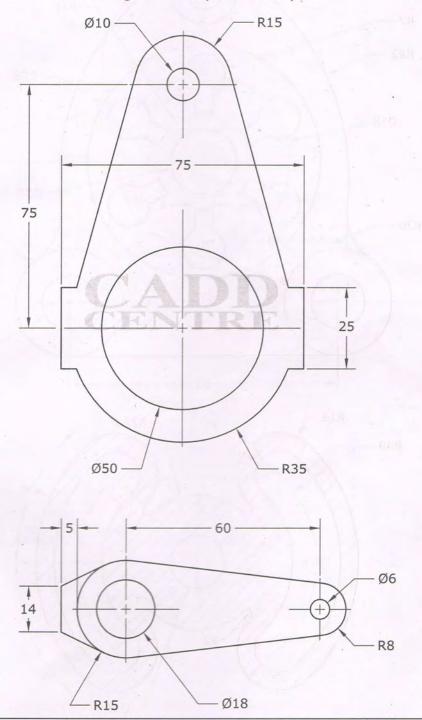
SAPR

HATRONYKS

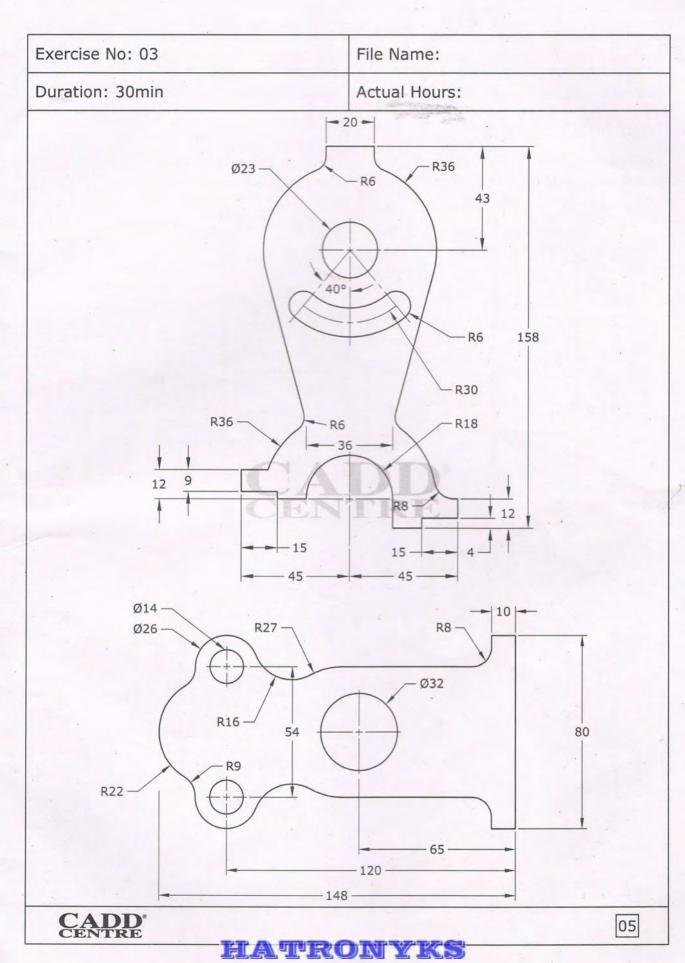
Exercise No: 01	File Name:	Exercise No; 02.
Duration: 30min	Actual Hours:	Duration: 30mm

Instruction: -

Exercise No 01,02,03 are intended for a SolidWorks user to practise sketcher tools, relations and dimensioning efficiently within stipulated duration.



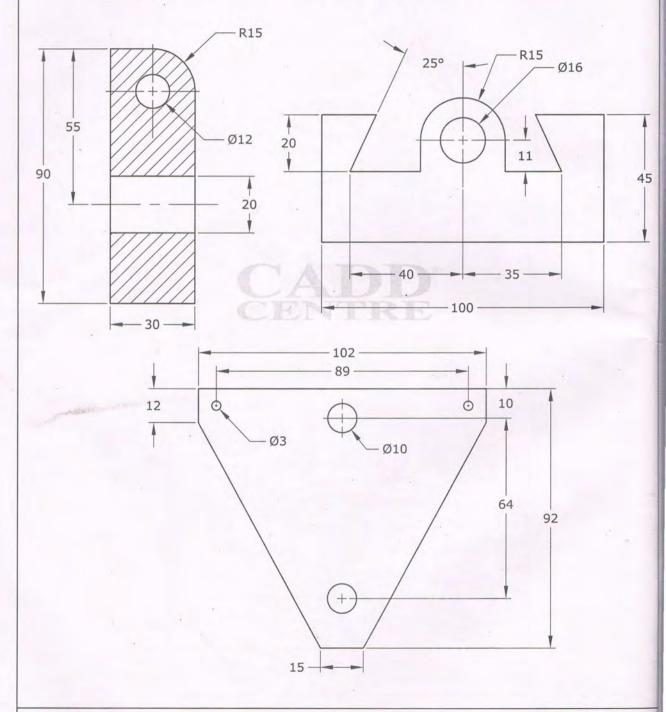
Exercise No: 02 File Name: Actual Hours: Duration: 30min Ø22 -Ø12 R16 R7 -R82 -Ø78 57 Ø58 104 - Ø22 Ø36 R20 -Ø18 - 90 R14 R22.5 R8 R40 -470 470 R2 Ø18



Exercise No: 04	File Name:
Duration: 30min	Actual Hours:

Instruction: -

Invoke SolidWorks 2D Emulator from Add-Ins and draw the sketch using command mode, add relations to make parametric.



Part Modeling

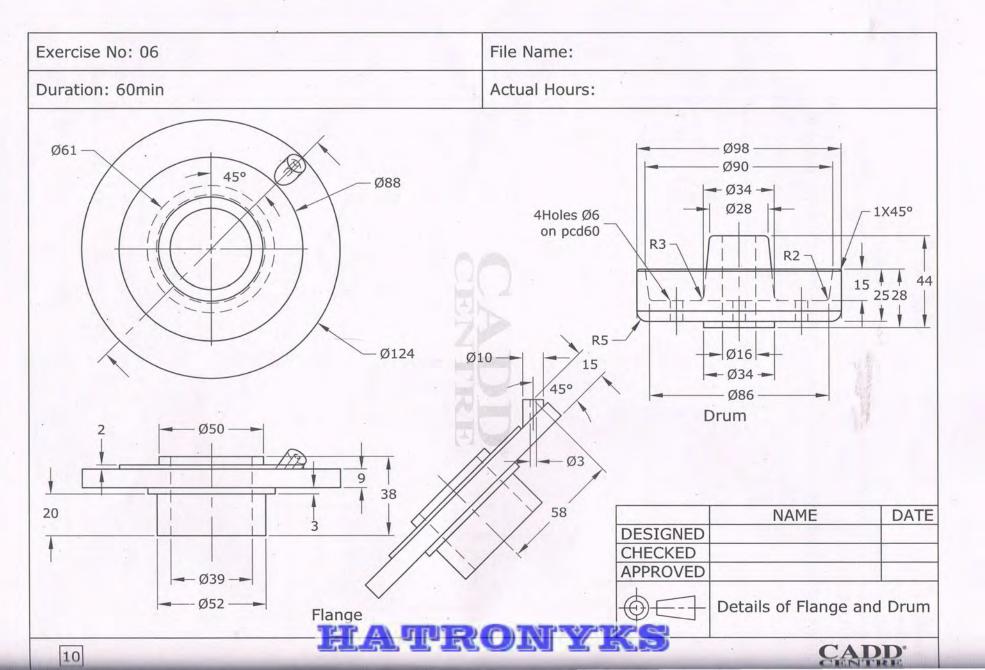


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Exercise No: 05 File Name: Duration: 50min Actual Hours: Instruction: -Create component from the views using Sketch tools, Extrude, Fillet, Instant 3D. R14 -25 Ø16 Ø12 - 28 -Ø28 -12 R19 12 72 R36 -R23 -R3 -14 30 1 11 78 50 -114 NAME DATE DESIGNED CHECKED **APPROVED** Details of Bracket

CADD

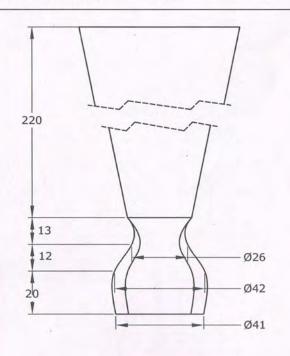
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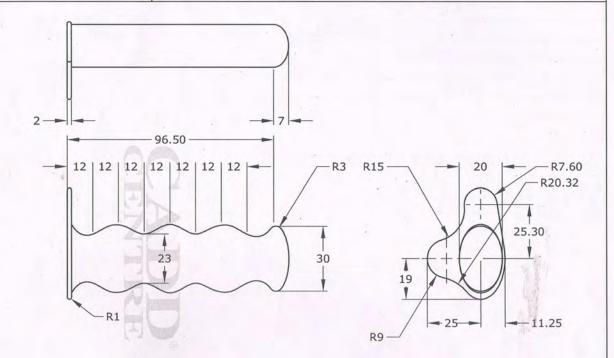


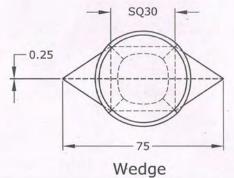
Exercise No: 07 File Name: Duration: 60min Actual Hours: - Ø84 -RIB THICKNESS 10mm --124--IØ441 Ø225-R10 -R134 197 6 HOLES Ø15 EQUI-SPACED ON PCD185 R4 -Ø80 --Ø108-40 → Ø120 → R90 150 Suspension component Ø65 Ø97 30 25 NAME DATE **DESIGNED** CHECKED 5 HOLES Ø15 EQUI-**APPROVED** Ø225 SPACED ON PCD185 Details of Elbow and Elbow made up of Cast Iron Suspension component 11

Exercise No: 08 File Name:

Duration: 60min Actual Hours:







Ice cream scoop handle

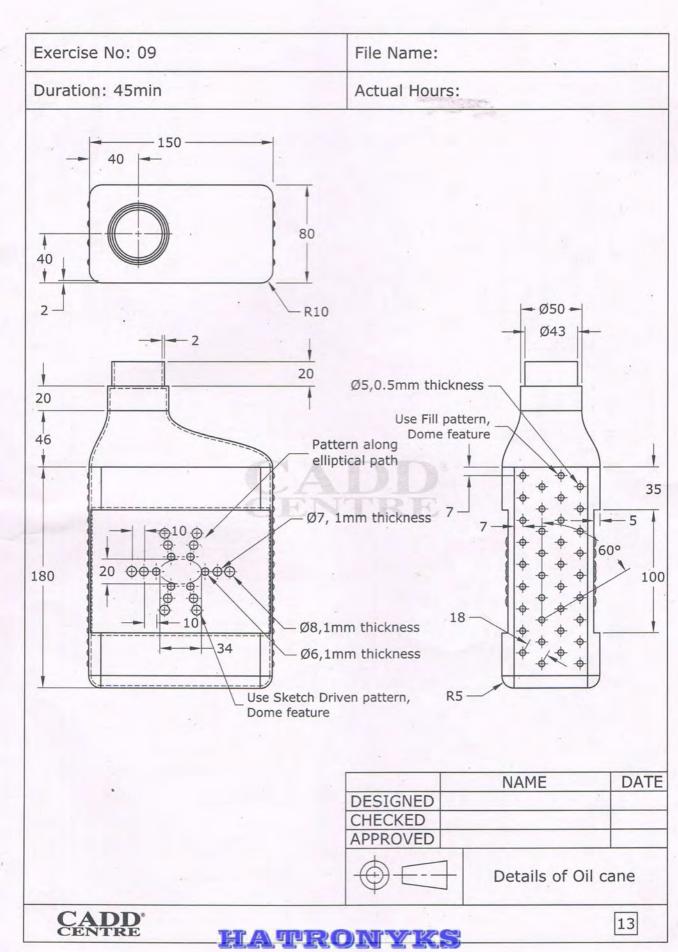
	NAME	DATE
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APPROVED		

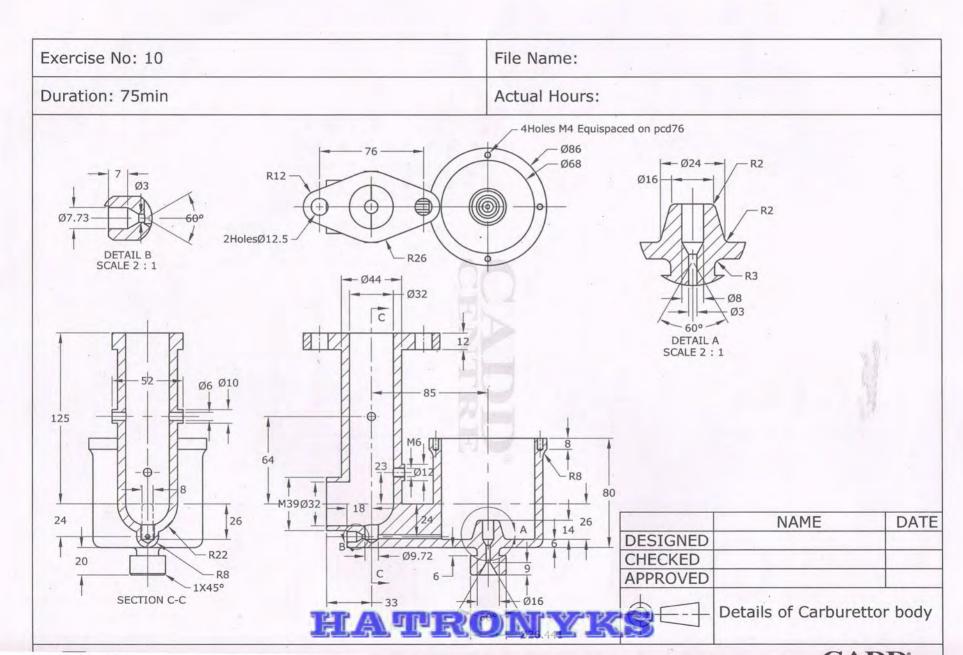


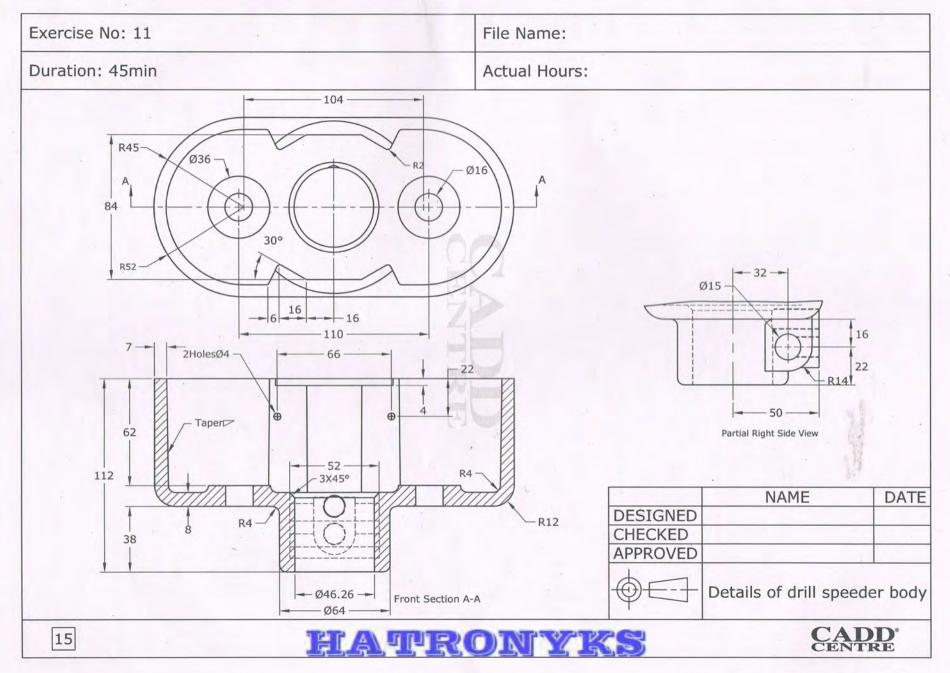
Details of Wedge and Handle

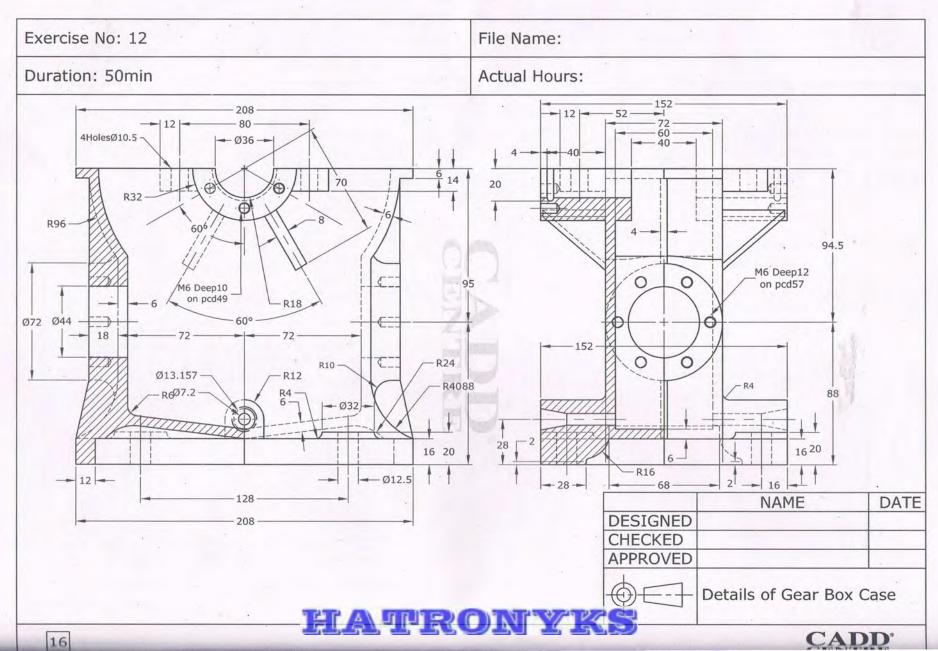
HATRONYKS

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Assembly Modeling



Project No: 0A0-000	File Name:
Duration: 360min	Actual Hours:

Directions: -

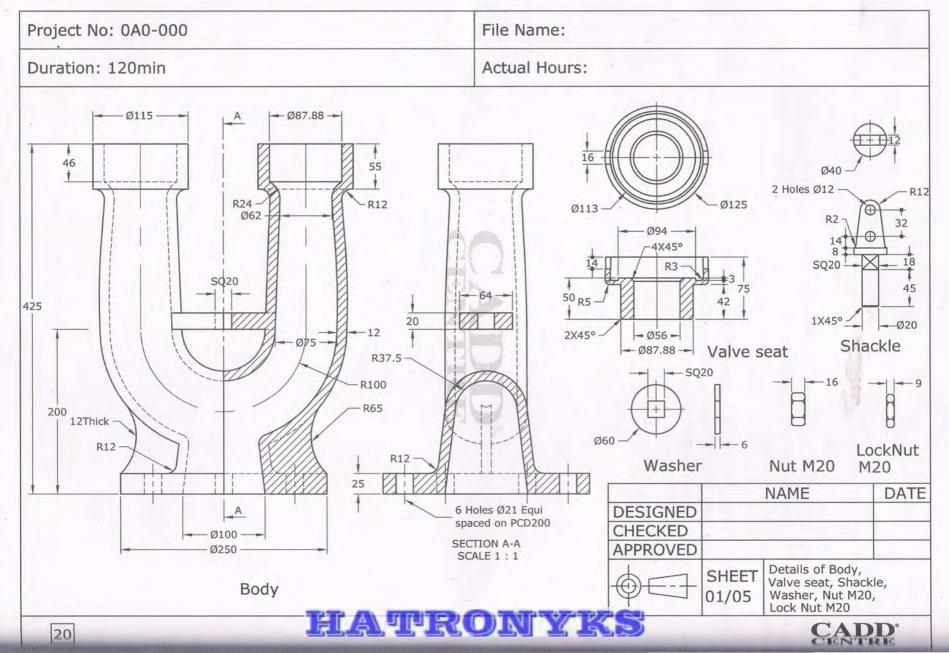
The objective of this project is to create Ramsbottom safety valve. This safety valve characterized by two vertical tube is a spring loaded type of safety valve. It is fully employed in mobile boilers such as locomotive and marine boilers.

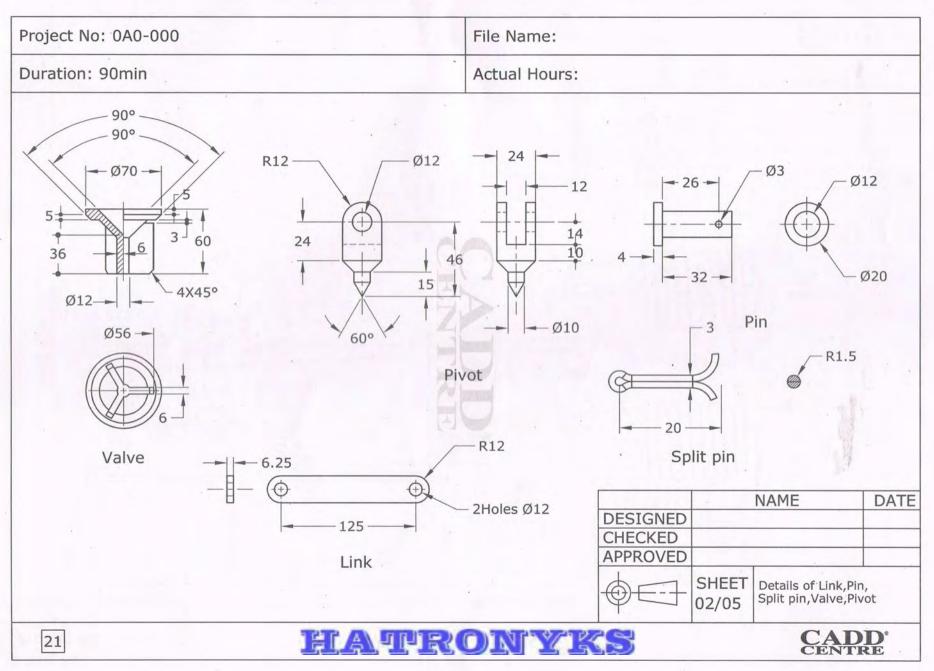
To complete the project follow the procedure given below: -

- 1. Create the parts from the detailed views shown in the Project 0A0-000.
- 2. Save each part with specified names in your locker/destined folder.
- 3. Strictly follow the dimensions given in the project.
- 4. Refer the design data book for standard parts.









Project No: 0A0-000 File Name: Duration: 90min **Actual Hours:** 97 9.7 510 R26 Ø60 100 100 - 25 150° R13 60 Ø9 --46 R12 R12 R20 Ø12 R6 600 Spring Lever NAME DATE DESIGNED CHECKED **APPROVED** SHEET Details of Lever, Spring 03/05 22

Project No: 0A0-000 File Name: Duration: 60min Actual Hours:

		NAME	DATE
DESIGNED			
CHECKED			
APPROVED			
фEЭ	SHEET 04/05	Details of Rambottom Sa Valve assembl	afety ed view

CADD.

23

Project No: 0A0-010	File Name:
Duration: 300min	Actual Hours:

Directions: -

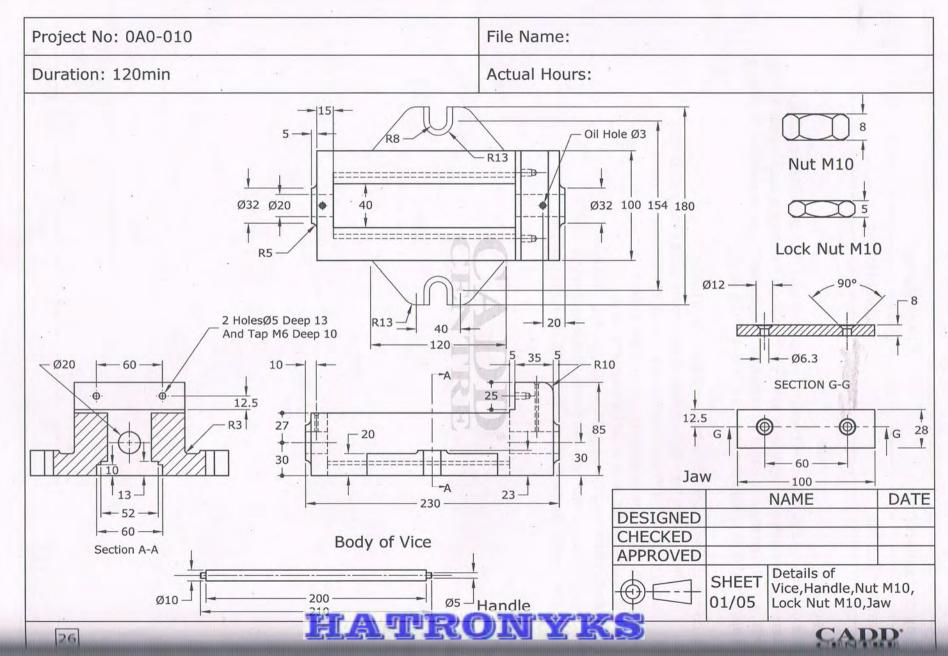
The objective of this project is to create a Machine vice. This is used for holding or clamping work piece to allow work to be performed on it with tools such as saws, mills, drills, screw drivers, sand paper etc. Machine vice is fixed to the work tables of planing, shaping and drilling machine etc., as a work holding device.

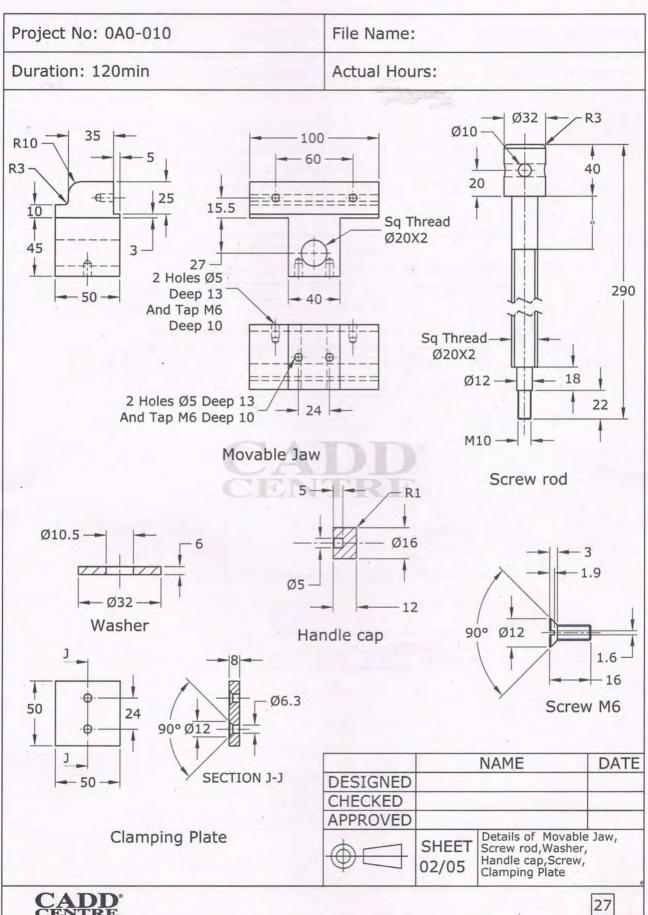
To complete the project follow the procedure given below: -

- Create the parts from the detailed views shown in the Project 0A0-010.
- 2. Save each part with specified names in your locker/destined folder.
- 3. Strictly follow the dimensions given in the project.
- Refer the design data book for standard parts.
- 5. Assign limit mate between Movable Jaw and Vice Body.
- 6. Apply Screw mate between Screw Rod and Movable Jaw.
- 7. Give feed to Screw Rod, and check the movement of Jaw.





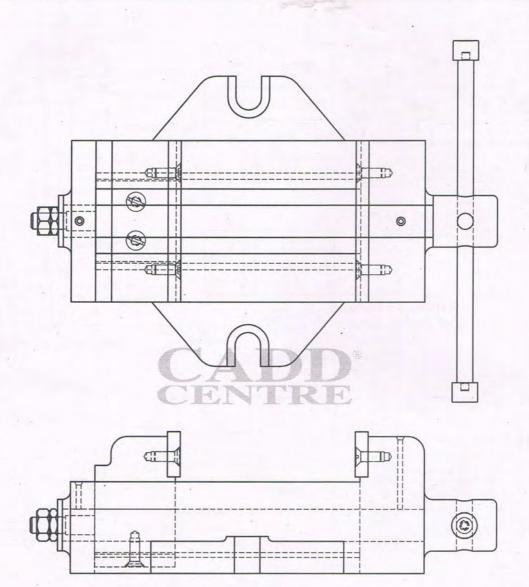




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Project No: 0A0-010 File Name:

Duration: 60min Actual Hours:



	_	NAME	DATE
DESIGNED			
CHECKED			
APPROVED			
⊕ □	SHEET 03/05	Detailed view Machine vice	of

28

CADD'

Project No: 0A0-020	File Name:
Duration: 395min	Actual Hours:

Directions: -

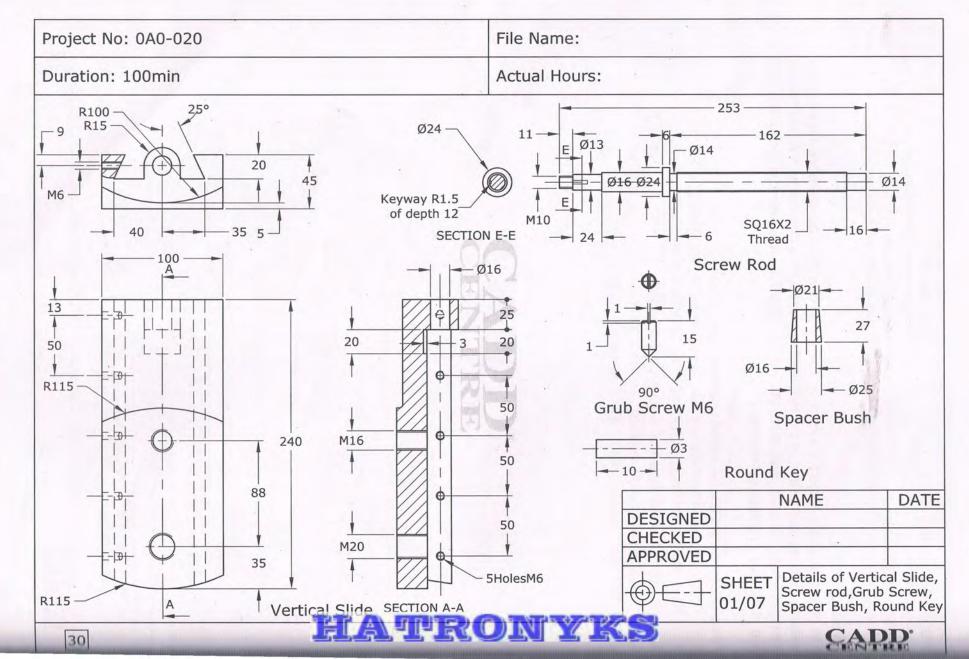
The objective of this project is to create Tool Head of a shaping machine. Tool head of a shaping machine comprises of the tool holding and feeding devices with additional arrangement to set them inclined to the vertical. The Tool head is mounted on the front end of the ram of Shaping machine.

To complete the project follow the procedure given below: -

- Create the parts from the detailed views shown in the Project 0A0-020.
- 2. Save each part with specified names in your locker/destined folder.
- 3. Strictly follow the dimensions given in the project.
- 4. Refer the design data book for standard parts.
- 5. Detect interference volume between components.







Project No: 0A0-020 File Name: Duration: 100min Actual Hours: 40-5Holes4X50 - 50 -Ø22 22 65° 20 90° Ø6 -13 232 SECTION B-B Adjustable Strip 45 - 55 -Ø155 Ø45 Ø13 M10 SØ35 SØ30 -28M10 100 Ø11 - 70 - 10 16 19 SQ16X2 Thread 25° Ø20 Nut SØ25 Handle Bar 22 64 NAME DATE **DESIGNED** 22 CHECKED **APPROVED** Ø100 R20 R14 Details of BackPlate, SHEET Adjustable Strip, 02/07 **Back Plate** Handle Bar, Nut 31

Project No: 0A0-020 File Name: Duration: 60min Actual Hours: 72 -Ø14 30 R115--R88 Taper1:50 -15 R15 -R8 20 14 16 90 Ø14 Ø33 Ø45 Taper1:50 14 (+) 150 41 G -13-Ø30 Ø22 R115 35 SECTION G-G 66 --Drag Plate 66 R115 **--** 50 --100 NAME DATE SECTION F-F DESIGNED CHECKED Swivel Plate **APPROVED** Details of SHEET Swivel Plate, 03/07 Drag Plate

HATRONYK

32

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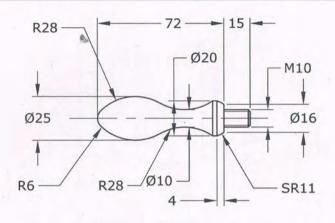
Project No: 0A0-020 File Name: Duration: 45min Actual Hours: Ø30 SQ16 --16 25 -2.5 Ø14.5 3.5 110 Ø25 75 13 Ø22 Taper1:50 30 Ø14 --M16 M20 Swivel Screw Pin Pivot Pin Clamping Screw Ø63 Ø16 Ø35 -NAME DATE DESIGNED Ø33 CHECKED -10 **APPROVED Details of Clamping** SHEET Screw, Swivel Screw Washer Washer 04/07 Pin, Pivot Pin, Washer 33

Project No: 0A0-020

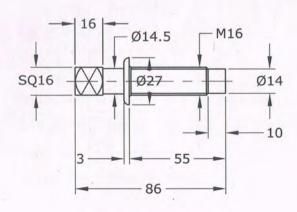
File Name:

Duration: 60min

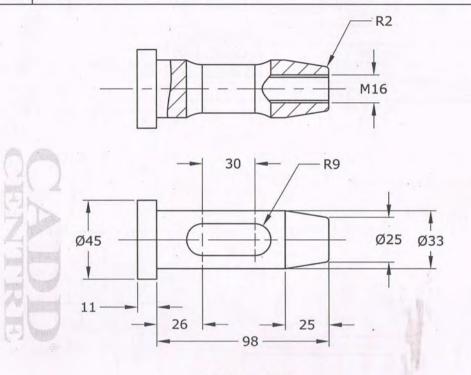
Actual Hours:



Handle



Tool Fixing Screw



Tool Holder

		NAME	DATE
DESIGNED	9		
CHECKED			4
APPROVED			1
\$	SHEET 05/07	Details of Har Tool Fixing So Tool Holder	ndle, crew,

Project No: 0A0-020 File Name: Duration: 30min Actual Hours: (2) (3) (5) NAME DATE DESIGNED CHECKED **APPROVED** Details of assembly of Tool Head of SHEET Section I-I 06/07 Shaping Machine 35

Surface Modeling

Exercise No: 01	File Name:	
Duration: 60min	Actual Hours:	*

The objective of this project is to create semi finished bottom casing of a iPhone 3G using surface tools. iPhone 3G is an internet and multimedia enabled smart phone.

- Create surface features from iPhone bottom casing detail views.
- 2. Use Extrude, Sweep, Fill surfaces to design the component.
- 3. Join all the surfaces using Knit surface command.
- 4. Apply thickness to the surface using Thicken command.
- 5. Check curvature discontinuities along surfaces.
- 6. Strictly follow the dimensions given.





Exercise No: 01 File Name: Duration: 60min Actual Hours: 112.06 12.30 -R22.34 R9 R5 -29.37 17.53 53.68 0.43 NAME DATE Detail A **DESIGNED** Scale 5:1 CHECKED **APPROVED** Details of semi finished bottom casing of a iphone HATRONYKS an

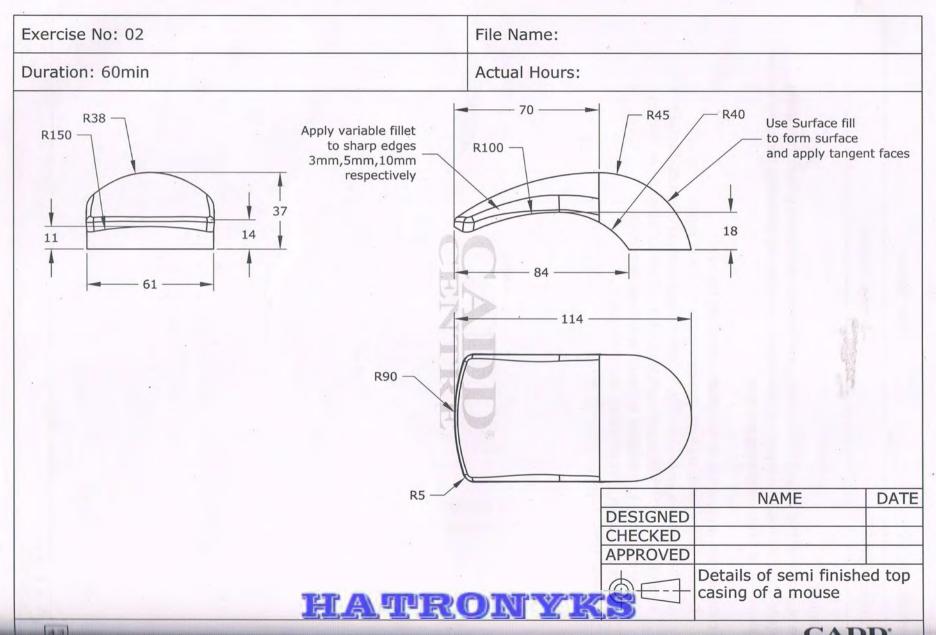
Exercise No: 02	File Name:
Duration: 60min	Actual Hours:

The objective of this project is to create semi finished top casing of a mouse using surface tools. A mouse is a pointing device that functions by detecting two dimensional motion relative to its supporting surface.

- 1. Create surface features from mouse top casing detail views.
- 2. Use the following tools to design: Split curve,3D sketch,Extrude,Surface trim,Variable radius fillet,draft,Loft,Mirror,Fill surfaces,Knit surfaces,thicken.
- 3. Apply tangency to the lofted surfaces wherever required.
- 4. Check curvature discontinuities along surfaces.
- 5. Strictly follow the dimensions given.







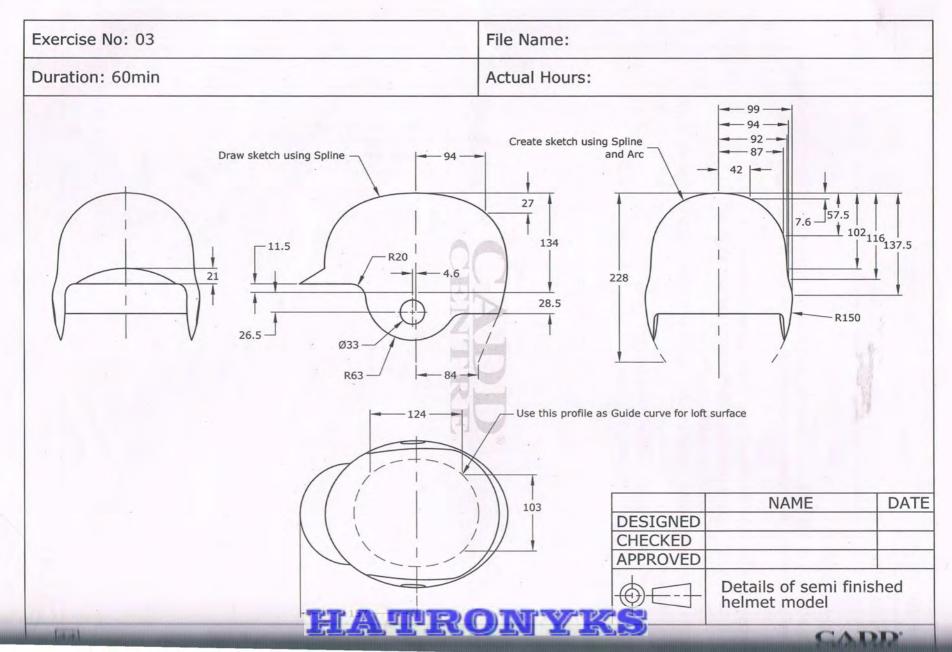
Exercise No: 03	File Name:
Duration: 60min	Actual Hours:

The objective of this project is to create semi finished helmet model using surface tools. A helmet is a form of protective gear worn on the head to protect it from injuries.

- 1. Create loft surface using four profiles and one guide curve.
- 2. Trim the surface using sketch as trim tool.
- Use boundary surface command to form surface and apply tangency along surfaces.
- 4. Check curvature discontinuities along surfaces.
- 5. Strictly follow the dimensions given.







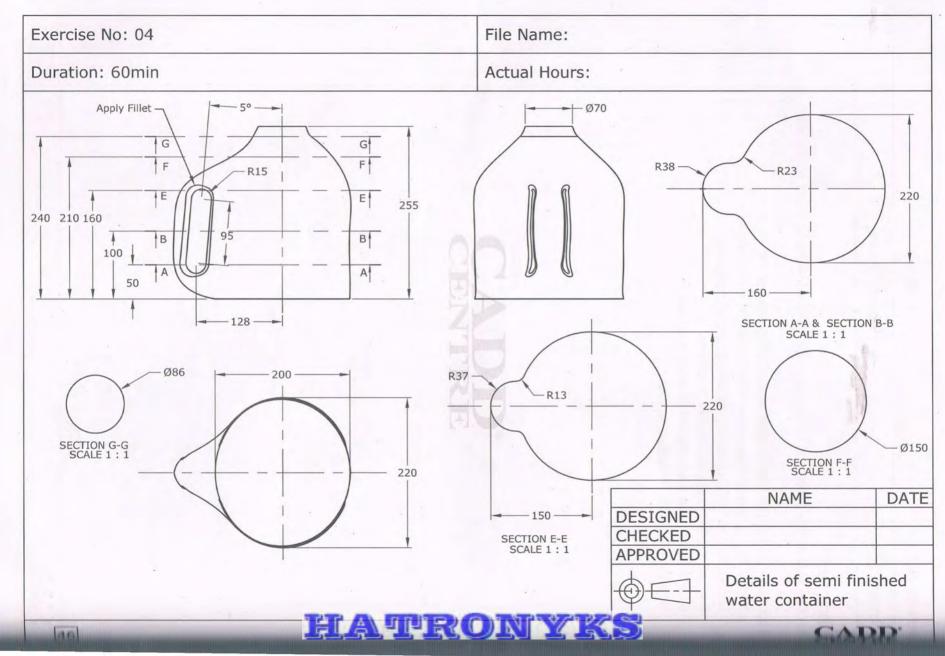
Exercise No: 04	File Name:
Duration: 60min	Actual Hours:

The objective of this project is to create semi finished water storage container.

- 1. Study the details of Water container given in the exercise.
- 2. Using appropriate surface tools create water container.
- 3. Knit all the surfaces and apply thickness.
- 4. Check curvature discontinuities along surfaces.
- 5. Strictly follow the dimensions given.







Sheet Metal Designing

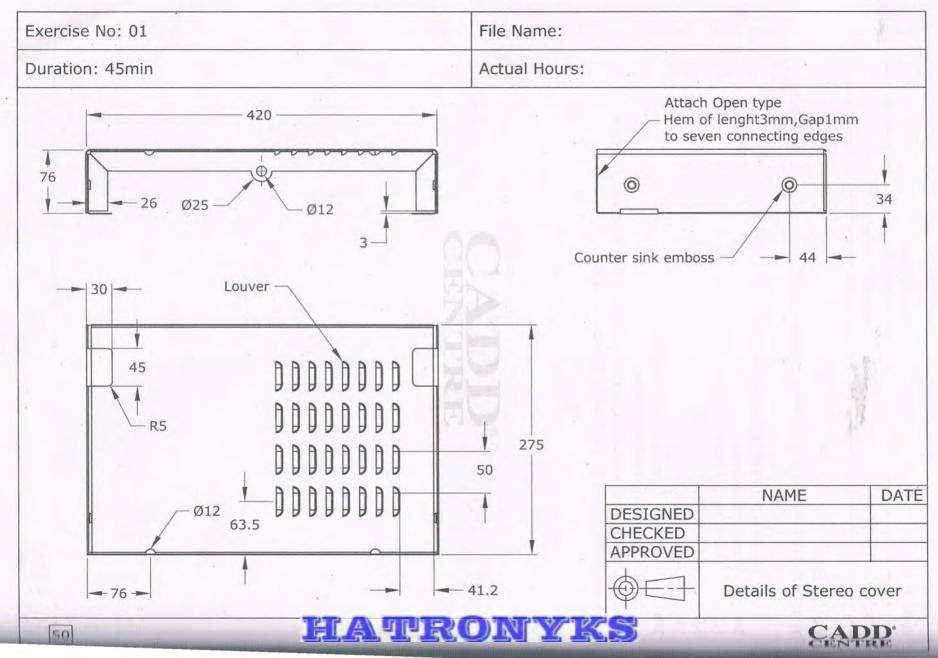


Exercise No: 01	File Name:
Duration: 45min	Actual Hours:

The objective of this project is to create a stereo cover.

- 1. Use following parameters design the sheetmetal body
 - 1.1. Bend radius:5mm
 - 1.2. Thickness:0.75mm
 - 1.3. K-Factor:0.4
 - 1.4. Relief:Tear
 - 1.5. Hem type:Open with 1mm miter gap
- 2. Strictly follow the dimensions given.
- 3. Use Counter sink emboss2 and Louver forming tool from design library.
- 4. Create flat pattern for the created sheetmetal body.





Exercise No: 02	File Name:
Duration: 60min	Actual Hours:

The objective of this project is to create a sheetmetal body required for an electronic device.

- Use following parameters design the sheetmetal body
 - 1.1. Bend radius:10mm
 - 1.2. Thickness:1mm
 - 1.3. K-Factor:0.5
 - 1.4. Relief:Rectangular
 - 1.5. Hem type:Open with 1mm miter gap
- 2. Create vent of width8mm and depth1mm.
- 3. Strictly follow the dimensions given.
- 4. Use Louver forming tool from design library.
- 5. Create flat pattern for the created sheetmetal body.





Exercise No: 02 File Name: Duration: 60min Actual Hours: |50| Attach Edge Flange of length 50mm 800 Louverto eight connecting edges 535 50 11XØ20 0 0 300 130 270 0 140 **R28** 90 Ø200 50 -640 NAME DATE DESIGNED CHECKED **APPROVED** 160 Details of a semi finished 200 → sheetmetal body of a electronic device 52

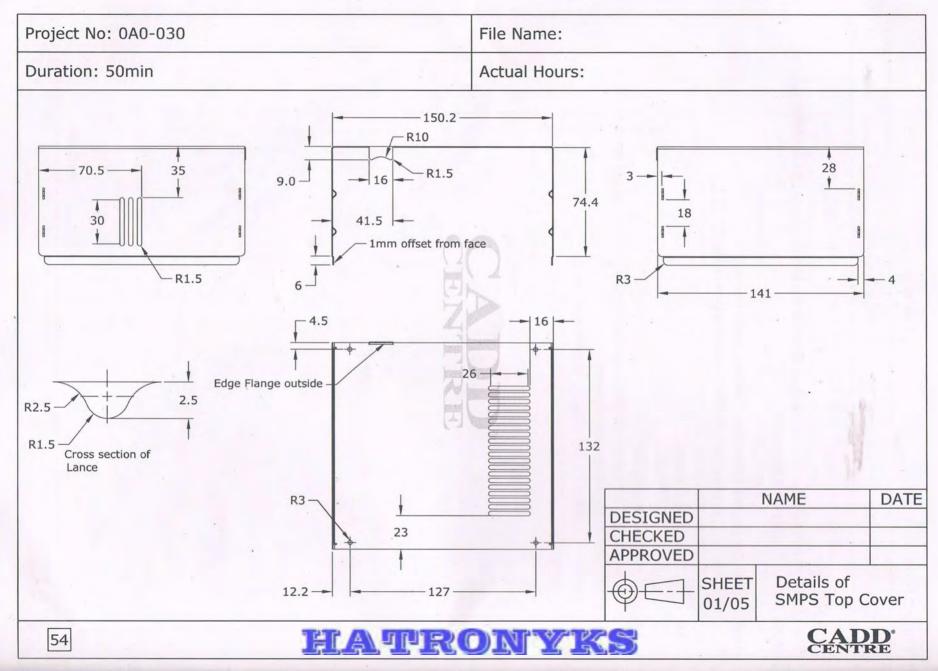
Project No: 0A0-030	File Name:
Duration: 155min	Actual Hours:

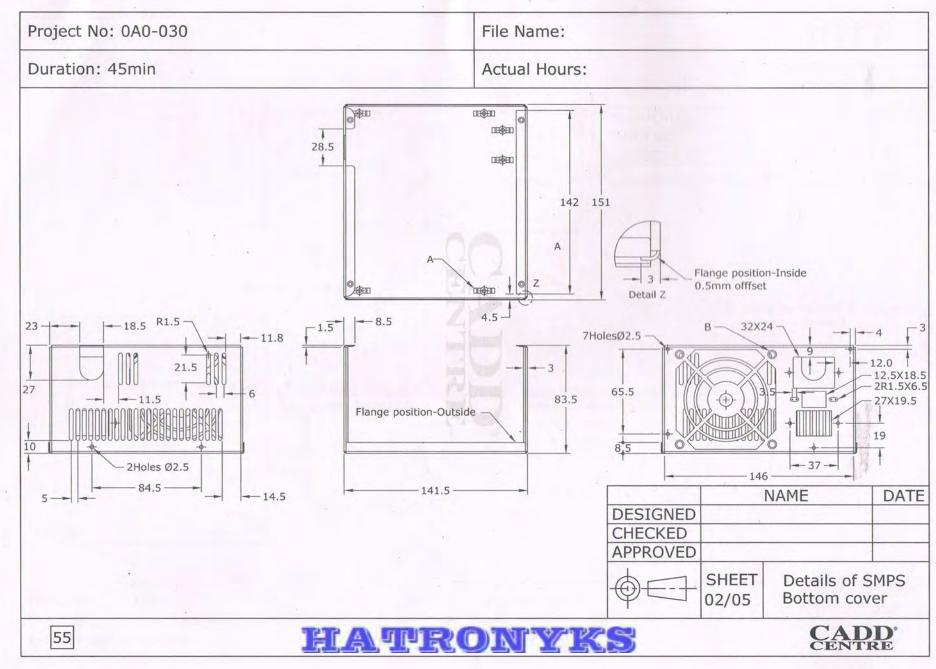
The objective of this project is to create a sheetmetal body required for a SMPS (Switch Mode Power Supply) in a computer.

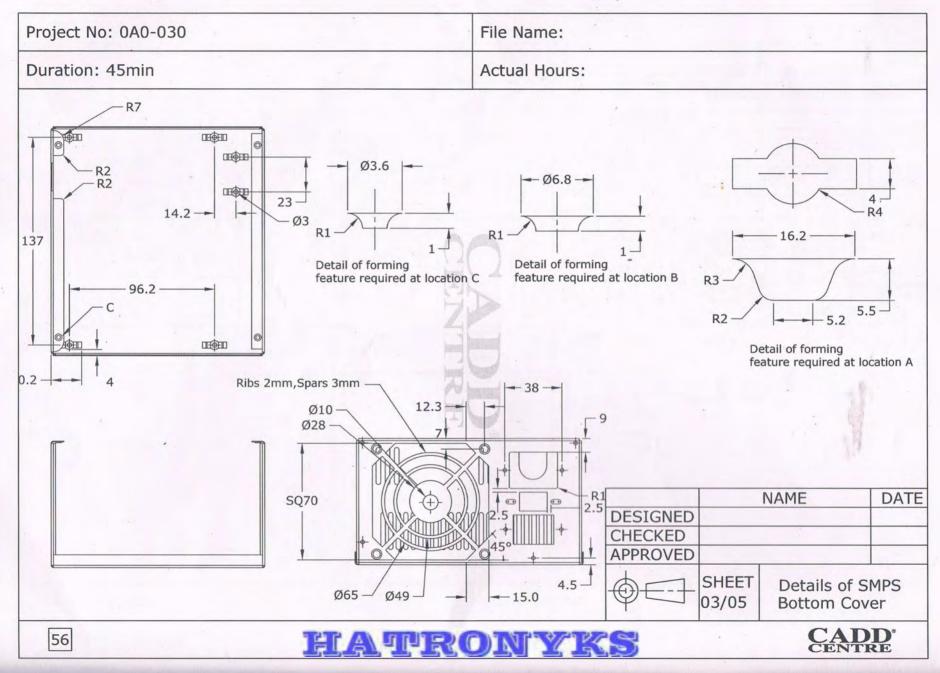
To complete the project follow the direction given below.

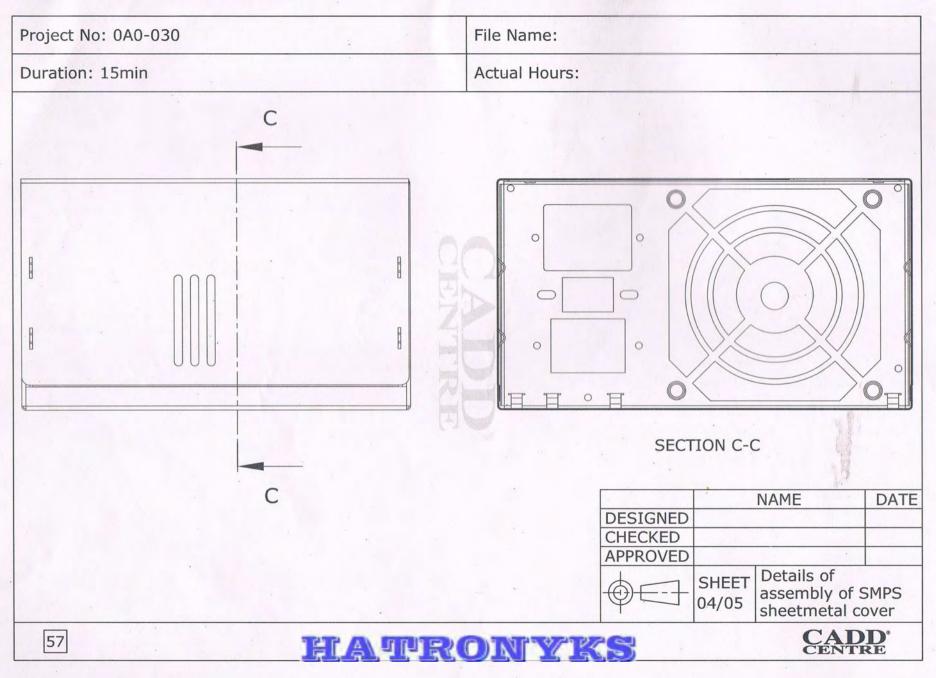
- 1. Use following parameters to design the sheetmetal body
 - 1.1. Bend radius:1mm
 - 1.2. Thickness:0.5mm
 - 1.3. K-Factor:0.5
 - 1.4. Relief:Rectangular
- 2. Create forming features and add to design library, insert in sheetmetal body.
- 3. Strictly follow the dimensions given.
- 4. Create flat pattern for the created sheetmetal body.









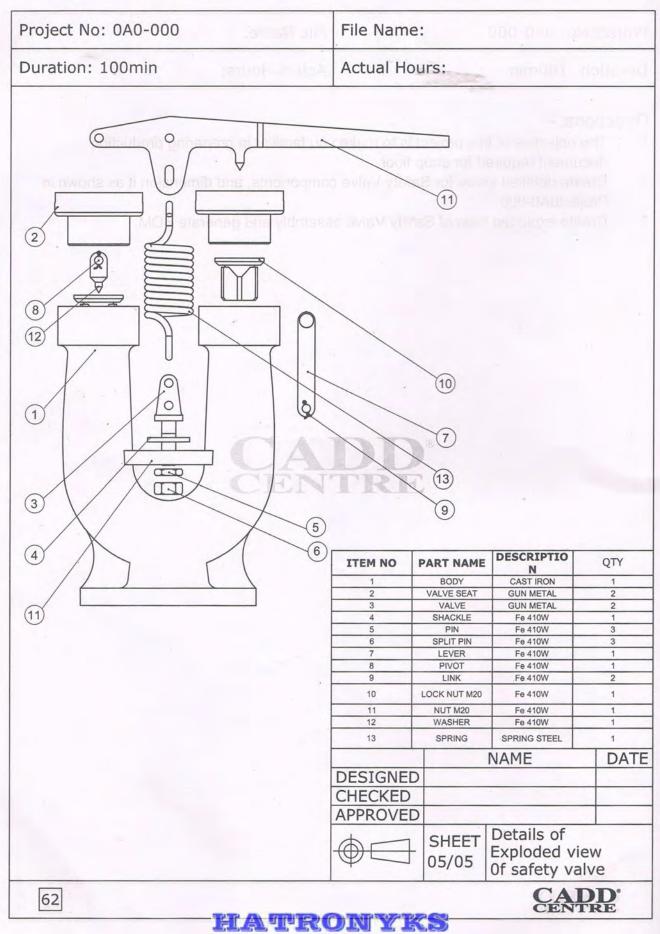


Detailing

Project No: 0A0-000	File Name:
Duration: 100min	Actual Hours:

- The objective of this project is to make you familiar in preparing production document required for shop floor.
- Create detailed views for Safety Valve components, and dimension it as shown in Project0A0-000.
- 3. Create exploded view of Safety Valve assembly and generate BOM.

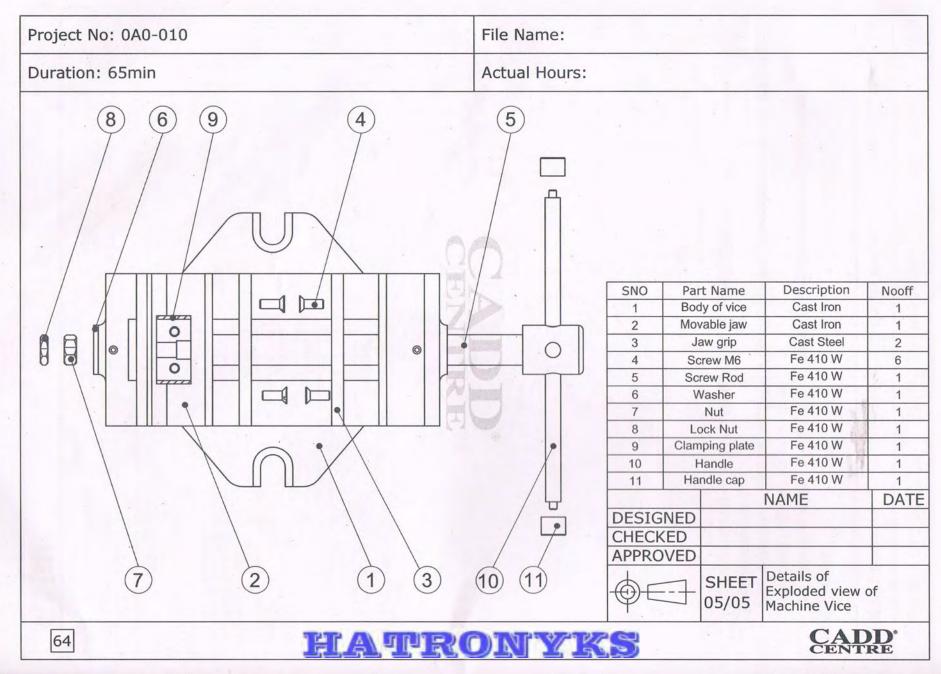




Project No: 0A0-010	File Name:
Duration: 65min	Actual Hours:

- The objective of this project is to make you familiar in preparing production document required for shop floor.
- Create detailed views for Machine Vice components, and dimension it as shown in Project0A0-010
- 3. Create exploded view of Machine Vice and generate BOM.

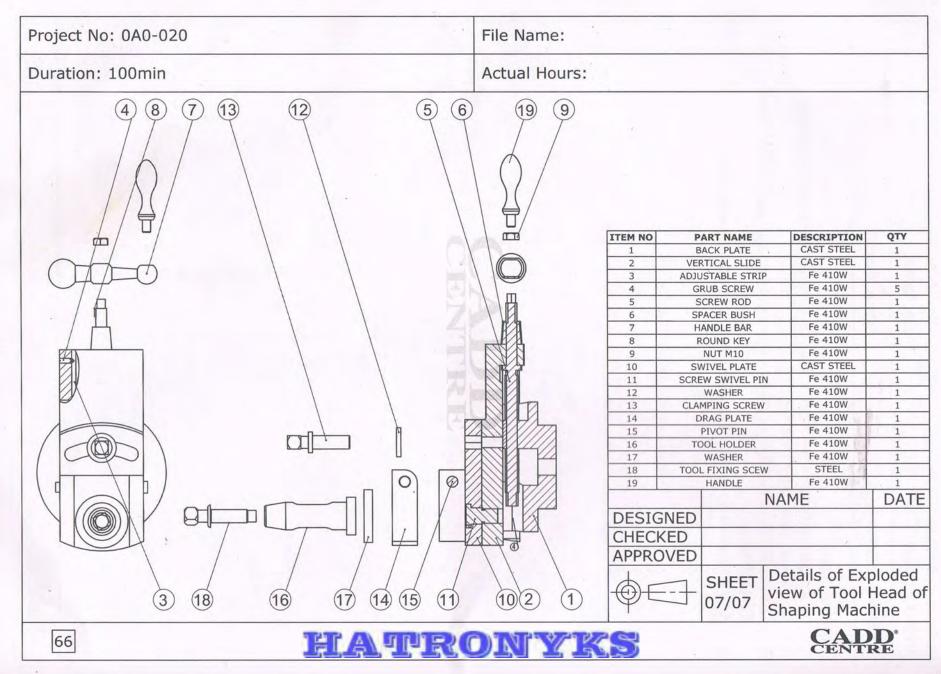




Project No: 0A0-020	File Name:
Duration: 100min	Actual Hours:

- The objective of this project is to make you familiar in preparing production document required for shop floor.
- Create detailed views for Tool head components, and dimension it as shown in Project0A0-020.
- 3. Create exploded view of Safety Valve assembly and generate BOM.

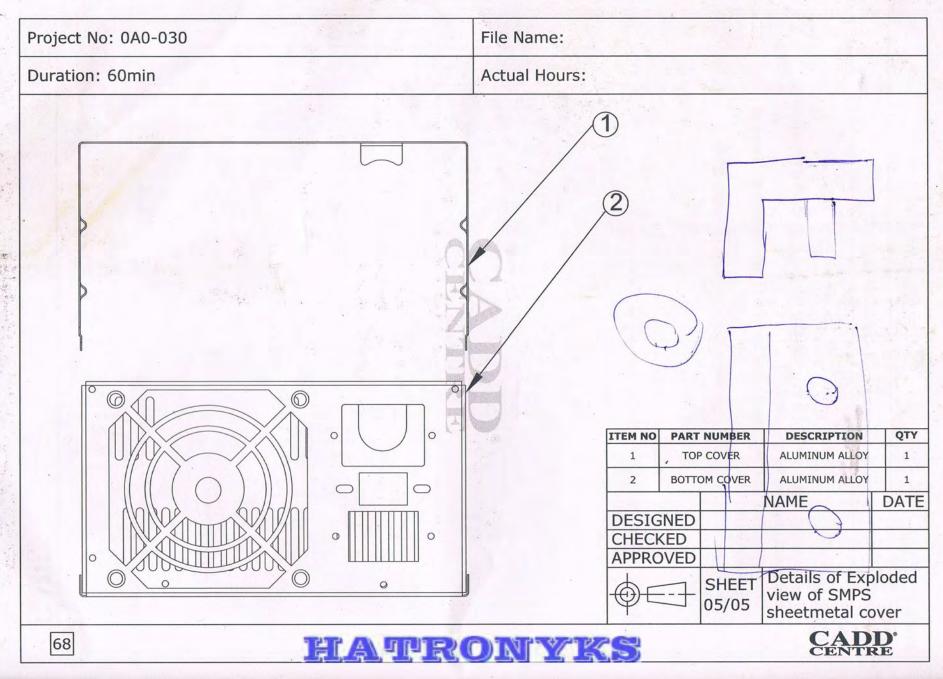




Project No: 0A0-030	File Name:	
Duration: 60min	Actual Hours:	

- The objective of this project is to make you familiar in preparing production document required for shop floor.
- Create detailed views for sheetmetal body, and dimension it as shown in Project0A0-030.
- 3. Create exploded view of Safety Valve assembly and generate BOM.







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Customer Notification

Dear valued customer.

We request you to keep yourself updated on the deliverables of CADD Centre and the following important steps to be taken during all processes, right from the counselling and till the completion of course:

During the counselling

- Confirm that the centre has a valid "Authorisation Certificate" issued by CADD Centre Corporate Office
- * Have the course objectives explained to you in detail
- * Obtain the course summary brochure for future reference
- * Have a demonstration of the key features of the software tools
- Look for the "Certificate of Expertise", given to the centre, to assure its technical expertise
- * Check for the course chart & choose a program

2 During enrollment

- Pay as per the prescribed course fee; collect the receipt for fee with applicable tax paid
- Register yourself at <u>www.caddcentre.ws</u> with your email ID before you attend the class; it is a must for your certification
- Check your email account and collect your unique student ID number
- Maintain the email communication received for your future reference
- Provide your unique Student ID number to the centre and keep it for your future communication

3 During the delivery of courses

- * Get the CADD Centre ID card to avail reference schemes
- * Collect CADD Centre's printed reference guide for all modules
- Collect CADD Centre's project workbook for practical sessions
- * Know day-wise course break up containing complete syllabus
- * Have theory and practical training from a qualified instructor
- Tear-off the feedback form attached with each courseware; fill it with signature and submit it at the end of every module; this is a must for your certificate process

4. On completion of the course

- Obtain CADD Centre Course completion certificate with hologram
- Collect the specially designed certificate folder to safe keep and display the certificate
- Verify the certificate number in <u>www.caddcentre.ws</u> site to ensure employer verification after 30 days from the receipt of the certificate
- Upload your resume at <u>www.skillease.co.in</u> for free placement assistance

For further clarifications / assistance / concerns, please write to customer care at feedback@caddcentre.ws (or) Toll free number 1800 - 425 - 0405 (Between 9 am to 6 pm).

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