4. CAE Using ANSYS – 18.2

Fee: Rs 15,000/- + GST **Duration: 150 hrs**

Introduction to FEA & ANSYS:
GUI, Basics & general analysis procedure.

Modeling:
Creating Solid model, Finite element modeling and importing models, Select Entities and Component manager.

Meshing:
Quad and Tetrahedron mesh, Volumes, Areas, Line meshing. Free and mapped meshing, check mesh.

Structural Analysis:
Static, Modal, Harmonic, Spectrum, p-method, Nonlinear &Transient analysis.

Thermal Analysis:
Steady state thermal analysis.

ANSYS Workbench:
Simulation, CFX Mesh, Engineering Data sheet and FE modeller.

5. MASTER PROGRAMME IN CAD/CAM

(SOFTWARE – SOLIDWORKS, UG, MASTERCAM, REVERSE ENGINEERING SOFTWARE'S + HANDS ON 3D SCANNER)

Course Fee: Rs 60,000/- + GST

Duration: 6 months (1,000 Hrs)

Eligibility for Courses 1 to 5

Degree/Diploma/ITI in Mech./Prod/Auto/Plastics/Mould Making/Tool & Die Making / Machinist/Draughtsman or equivalent.

Software Highlights:

- *Advanced & Updated version with* FEA, CFD, Thermo-Mechanical & Simulation Workbenches.
- *Manual programming (G-code) or via CAD/CAM system software.*
- *Special theory class on Product Lifecycle Management*
- *Focused Training on Bill of Material Creation (BOM) & Body in White (BIW) Surfacing.*
- *Training based on Industrial and Research needs.*

Hardware Highlights:

- *High performance Workstations (64GB RAM With 2.20 GHz –Dual Processor).*
- *High performance Server with 2X Intel Xeon 2.10GHz Processor.*
- *Wide 24" High Definition Monitor with NVIDIA graphics card.*
- *Hand held Blue light scanner.*

COURSE HIGHLIGHTS:

- FLEXIBLE CLASS TIMING
- NEW PRODUCT DEVELOPMENT CONCEPTS
- ONE MAN – ONE MACHINE
- SPECIAL GD&T CLASSES

CONCESSION DETAILS:

- GEN Category with 60% marks in Degree/Diploma: 10%
- BC/MBC/OBC with Degree/Diploma: 20%
- SC/ST/Physically Challenged with Degree/Diploma: 25%
- Women: 25%
- General Category Students (Colleges/Polytechnics): 25%
- SC/ST/Physically Challenged Students (Colleges/Polytechnics) : 30%
- CIPET Alumni: 50%
- Batch Consisting of 05 (Five) or Above: 30% & 10 (Ten) or Above: 40%
- Multi-Software Programme: 02 software's – 20% & 03 software's – 40%

(*Only one Concession can be availed at a time)

Also Available

- x **Weekend Batch**
- x **Evening Batch (6.00 p.m. to 8.00 p.m.)**

CIPET: SARP-APDDRL

(Department of Chemicals & Petrochemicals, Ministry of Chemicals & Fertilizers, Govt. of India)

CAD/CAM/CAE Training Programmes

ADDRESS:

 # 488-B, 4th Floor, Block – 2, KIADB Building, 14th Cross, Peenya 2nd Stage, Bengaluru – 560 058
Mobile: 7666355661 / 7448567739 /08028366464
E-mail: apddrlcad@gmail.com

CIPET: SCHOOL FOR ADVANCED RESEARCH IN POLYMERS

ADVANCED POLYMER DESIGN & DEVELOPMENT LABORATORY

Central Institute of Plastics Engineering & Technology **(CIPET)** is a **Premier National Institution under the Ministry of Chemicals & Fertilizers, Govt. of India**. Devoted to the development of Polymer & allied industries in India by conducting Academic, Skill Development and providing Technology Support services. CIPET has Head Office at Chennai and 40 Centres located across India. SARP-APDDRL is an Advanced R&D Lab focusing on Plastics product design & development, polymer material development, Technical consultancy, etc. at Bengaluru.

APDDRL conducts the following job oriented CAD/CAM/CAE programmes for the benefit of Engineering/ITI/Diploma candidates**. Certificate awarded by CIPET, Govt. of India.**

1. CAD/CAM Using UNIGRAPHICS – NX12

Module: 1 (CAD)

Modeling: Introduction, Sketch, Curve, Curve Operations, Form Feature, Feature Operation, Transform.

Assembly: Assembly of Components, Exploded Views, Sequencing, Context Control, Cloning and Component arrays editing, Top Down Assembly.

Drafting: Drawing sheets, Views, Dimensioning, Annotations, Symbols, Tabular note and Part list.

Module: 2 (CAM)

Direct Modeling, Free form feature: Sheets from points, making sheets from variable cross sections, Bridging, Offsetting, Filleting &Trimming sheet

Sheet Metal feature: Tab, Flange, Break corner, closed corner, Normal cut out, Jog, Bend, Dimple, Bead, Unbend, Re bend, Edge rib, flat solid.

Manufacturing: Model Creation, Tool Selection, Geometry Definition, Machining Methods, Planer Milling & Contour milling Operations & Post Processing

Courses 1 to 3:
Fees per module Rs 10,000/- + GST and
Duration: 100 hrs per Module

2. CAD Using SOLIDWORKS – 2017 & CAM Using Mastercam

Module: 1 (CAD)

Modeling:

Introduction, Pull down menus, 2D sketching, Part Modeling, Constructing Features, Editing Features, Symmetry & Drafting, Patterning, Revolved Features, Shelling & Ribs, Multi-Body Design Techniques, 3D sketching, Library features, Boundary features, Advanced modelling features.

Assembly Design:

Top-Up, Bottom Up, Degrees of Freedom, Advance Mate Techniques, Editing Methods, Large Assemblies Facility Layout,

Drafting:

Generative and Interactive Drafting, Stages, Annotations, Dimensioning, Detailing Techniques, Performance and Display, BOM, Tables.

Module: 2 (CAM)

Surface Modeling:

Hybrid modeling, Repairing and Editing, Blends& patches, Advanced Surface modeling

Sheet Metal:

Basic flange Features, Sheet metal Techniques, Multibody Sheet parts, Converting to sheet, forming tool and gussets, Table making.

Weldments:

Weldment features and techniques, working with bent structures.

MASTERCAM -

Syllabus:

Introduction to MASTERCAM Product Introduction, Basic concepts of CAM (cutters, machines job setup, etc..), Creating 2D drawings, Creating 2D tool paths, Creating 3D models(Solid & Surface) Creating 3D tool paths, Creating 2D Drawings, Line, Arc, Rectangle, Fillet, Chamfer, Point, Polygon, Rectangle shapes, X Form, Trim, Break, Drafting, Analyzing.

Creating 2D Tool paths: Pocket, Contour, Facing, Drilling, Transforming 2D tool paths (Translate, Rotate, Mirror), Hole milling, slot milling and helical milling tool paths, Back plot, Verification, Post processing.

Creating 3D Models: Extrude, Revolve, Fillet, Chamfer, Sweep, Thicken, Ruled, Boolean operations(Add, Subtract, Common), Converting Solid to Surface, Surface to Solid, Surface modeling tools (Ruled, Extrude ,net, fence, trim, split, removing boundary, fill, holes, flat boundary) Creating 3D Tool paths, boundary box, Orientation, Analysing, cutting methods, Verification, Gouge checking, Post – processing, Editing of programs.

3. Reverse Engineering Software's

Combines history-based CAD with 3D scan data processing so you can create feature-based, Editable solid models compatible with your existing CAD software.

Module: 1

Geomagic Design X 64

Preparation of STL model (MESH)

Creating a point cloud/grid of triangles model: MESH creation wizard; Since the scans with respect to each other; Registration scan in the global coordinate system; methods for patching holes; Mesh smoothing

Creating CAD model: Methods of modeling; Copy MESH; creation of surfaces to mesh

Creating segments: Automatic segmentation, edited segments; Matching; Automatic surfacing; Creation of patches; Surface Repairing.

Parametric CAD Modeling: Segmentation, orientation, 2D sketch, drawing shapes/sketches.

Surface CAD Modeling: 3D sketch, Surface, Pull, Drag, Forming, shaping, Accuracy SCAN to CAD.

CAD modelling Training: Building up the CAD model from 3D scan

Export history tree to the CAD

Geomagic Wrap -2017

Processing of point cloud scan data, Processing of STL data, Create water-tight STL models for rapid prototyping, Export data for downstream applications

Module: 2

Geomagic Control X 64

- Direct Scanner Integration
- Pre planned Probing Routines
- Walk up Inspection Tools
- Scanning Automation

REPORT

- Viewpoint Driven Reporting
- Customizable Templates
- Multi-Result Reporting

Geomagic Freeform Plus

How to navigate the User Interface, Modeling with Voxels and Sub D-Surfaces, Working with existing geometry and starting with nothing, Best practices and shortcuts to increase productivity, Generating molds and other file types for export