Electric Vehicle Designing And Manufacturing With CATIA V5

(Online & Offline Session)

COURSE CONTENT

♦ Introduction to the course

♦ Introduction to CATIA V5

DESIGNING BY USING CATIA

- Introduction to the course
- Engg. Drawing-paper, pencil, margine, titelbox, scaling
- Angle of projection concept, generation, symbols
- Types of views (isometric, diametric, section view, trimetric view, orthographic view).
- GD&T
- Tollerance, GD&T placing, datum feature, section view
- Introduction to the workspace
- Line, arc, circle(fully-constraint)exercises.
- Mirror, trim, extend
- Copy, move, rotate exercises
- Pad, pocket, shaft, groove
- Solidcombine, pad, pocket, shaft
- Rib, slot, plane creation, multi sec. Solid
- Project curve, mirror feature
- Hole & sub-option of hole
- 3d-pattern feature, dress-up feature
- Drafting, dimensioning & symbol

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- Introduction to drafting view generation; dimension placing
- Nominal tolerance & roughness, fit
- Assembly drafting, baloon generation; bill of material, edit sheet background
- Assembly(bottom-up & top-down)
- Kinematics
- Surfacing
- Sheetmetal
- Project and practice
- Golf cart designing & assembly
- Design on bike components

INRODUCTION TO ELECTRIC VEHICLE

- Introduction to EV (history, type, market condition; Indian market condition)
- Major components,how EV works,type of EV
- Batteries,type of batteries, lithium ion battery,lead acid battery
- Motors,type of motors, AC motors
- DC motors; BLDC motors; Hub motors
- Pmsc motors and working
- Induction motors and working
- Motor and battery suitable for golfcart
- DC controller,buck converter
- Controller, AC controller
- Working principle of controller
- Type of battery management system
- Functions of battery management system
- EV charger
- EV charging stations and Indian market

- Introduction to hev (history,type,major component)
- Types of hev in indian market and their responses
- Type HEV powertrain
- Introduction to fulecell EV
- Type of fulecell EV
- Circuit diagram of electric vehicle

BASIC COMPONENTS & VEHICLE DYNAMICS:

- Breaking system
- Differential and its working
- Transmission system
- Vehicle dynamic
- Vehicle geometry
- Calculation for chassis stiffness
- Steering assembly and joints and working
- Suspension system
- Vehicle packing
- Simulation and analysis of full vehicle

MANUFACTURING OF GOLF CART

- Metal cutting of chassis of golfcart
- Welding of chassis of golf cart
- Polishing of chassis, powder coating
- Painting of chassis
- Moulding of glass fiber of EV body parts
- Polishing painting of fiber parts
- Cutting of Sheetmetal

- Welding of Sheetmetal to the chassis frame
- Cutting and welding of body frame
- Cutting of roof Sheetmetal, punching bending of sheet metal
- Polishing and painting of roof top
- Assembling of rear differential
- Assembling of motor, leaf spring
- Assembling of front axial
- Assembling of wheel
- Assembling of breaking system
- Welding of sit frame, battery housing
- Assembling of moulded fiber body part
- Rooftop mounting and body mounting
- Steering mounting with the front axial
- Wiring harness ,connection of motor ,battery and controller
- Light key indicator and other electronic connection
- Testing and modification and mating stickering final polishing
- Complete testing of golfcart and running

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- Type HEV powertrain
- Introduction to fulecell EV
- Type of fulecell EV

- Circuit diagram of electric vehicle