



An ISO 9001 - 2008
Organization



TWG GROUP

THE WORD OF GOD

INTERNATIONAL STANDARD

ISO/IEC-17025:2005 NABL ACCREDITED FOR NDT

(Dept. of Science and Technology, Government of India)



Accreditation Certificate No: T - 2387
Metal Lab



सत्यमेव जयते
Government of India

AUTOMOBILE BODY DESIGN

CONTENT

SKETCHING FOR PRODUCT DESIGNERS

1. Introduction to Industrial Design
2. Sketching types (Ideation, Exploration, Explanation, Persuasion)
3. Free hand sketching
4. Perspective drawing
5. Sketching 1-Point, 2-Point and 3-Point perspectives
6. Sketching basic geometries
7. Sketching cubes, circles, ellipse, cylinder, sphere, filleted cube, cut objects
8. Sketching complex geometries
9. Creating view – Multiplying, dividing, mirroring the objects in perspective
10. Sketching exploded view
11. Concept generation
12. Shading and Rendering best practices
13. Digital rendering using Sketchbook pro

SKETCHING FOR AUTOMOTIVE DESIGNER

1. Vehicle architecture – A historical perspective
2. Automotive body layout, proportions, packaging and themes
3. Introduction to free hand sketching of simple geometries
4. Sketching in perspective: 1-Point, 2-Point and 3-Point Perspectives
5. Sketching Car block in 1, 2, and 3 point perspectives
6. Sketching car side view proportion– Sedan, SUV, Sports car, Compact car and Truck
7. Sketching car front view proportion
8. Sketching car ¾ front view; ¾ rear view
9. Concept car sketching
10. Shading and Rendering best practices

COMPUTER AIDED STYLING FOR AUTOMOTIVE DESIGNERS

1. Introduction to surface modelling
2. AutoDesk Alias User interface
3. Working with layers, canvas reference, mesh reference
4. Creating curve geometry for car exterior
5. Sculpting simple geometry
6. Curve editing methods, Object editing
7. Engineering surfaces features
8. Application in CAR exterior surface
9. Surface editing, Surface evaluation

SOFTWARES

* AUTODESK * ALIAS * CATIA

COMPUTER AIDED STYLING FOR PRODUCT DESIGNERS

1. Introduction to surface modelling
2. Alias User interface & File management
3. Working with layers, canvas & mesh reference
4. Creating curve geometry, curve editing methods
5. Sculpting simple geometry
6. Object editing
7. Engineering surfaces features, surface editing
8. Applications of CAS in consumer products
9. Surface evaluation & rendering

PRODUCT DESIGN USING REVERSE ENGINEERING

1. Scanning / Measuring (Using 3D scanner)
2. Importing and processing of scan data
3. Mesh processing of scanned data
4. Exporting mesh
5. Creating scans from the mesh data
6. Creating curves from the scans & editing them
7. Creating surface from curve geometry & editing them
8. 3D modeling (CATIA Surfacing)
9. Product analysis (CAE)

BIW DESIGN

1. Types of BIW
2. Standard procedures in BIW design
3. Exercises and techniques in BIW design
4. Clean edge modeling technique
5. Method for shaping the part
6. Creating complex and complex contoured depressions
7. Creating flanges, beads, darts
8. Completion of a BIW component from drawing sheet

COMPUTATIONAL FLUID DYNAMICS

1. Fluent simulation process
2. ANSYS Fluent GUI and software preliminaries
3. Flow mix and heat transfer (3D)
4. Meshing using ANSYS meshing application
5. Transonic flow - Airfoil
6. CFD simulation setup
7. Modeling multi species flow
8. Turbulence model in Fluent
9. Modeling periodic heat flow
10. Advanced post processing
11. Radiation and convection
12. Turbulent flow in heat exchanger
13. Siphoning using multiphase



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