

Automotive Plastic Design using CATIA V5





Who are we?

Skill-Lync is an engineering e-learning platform based in Chennai. The brainchild of two engineers, we are at the forefront of re-shaping engineering education in India. In the winter of 2019, we became the first start-up from Chennai to be funded by Y-Combinator.

Today, close to 8000+ students from over 58 countries study at Skill-Lync. Over three years we have helped 280 engineers achieve their dream careers.

58+

Countries

8000+

Students

300+

Placements

30000+

Projects



About the program

Automotive Plastic Design using CATIA V5 deals with the plastic component design in automobiles. The course gives you a brief overview of the different types of plastics used in automobiles. Students will understand the need to use injection moulding technique in plastic component manufacturing technique in this course.

The course helps you understand the CATIA software from the basics of sketcher workbench to advanced surface design which helps you to understand how to design plastic components based on industry-standard prerequisites.

In this course, you will learn about core and cavity creation for plastic components design. Design of engineering features like a dog house, ribs, and heat stakes, design of automotive plastic components based on injection moulding requirements and design of engineering features along with a few plastic component design projects, like - Switch bezel design from given Class A, Coin holder design, and Side door hand rest design, to name a few.

Reasons to select this course

- Designed by Skill-Lync with inputs from academicians and industry experts to ensure that students are trained in the skills expected in the industry.
- CATIA V5 is a very versatile tool. CATIA V5 is used in the design of products and also finds use in the design of manufacturing tools, wiring harness, and mold design.
- Upon completion of this course, the student will have a complete understanding of automotive plastics, injection moulding process, plastic design process, design rules, engineering feature design, and also complete plastic product development.
- Completing a Skill-Lync's course on Python is among the few tools in your resume that can instantly boost your chances of getting employed.



Modules

Design Overview In Automotive Industry

- Product Life Cycle
- Design Life Cycle

Plastics in Automotive Industry

- Types of plastics (Thermoset Plastics, Thermoplastic)
- Engineering plastic Materials
- Manufacturing Process
- Injection Molding

Introduction to CATIA

- Basic commands and operation.
- Save, pan, rotate etc.

Sketcher workbench

- Commands
- Rules to follow
- Working in exercise

Part Design Workbench

- Commands
- Rules to follow
- Working in exercise



Advanced part design

- Boolean operations
- Working on Boolean exercise
- Working on After Tool Go modification on Automotive components. (OEM Working procedures)

2D drawing creation

Create a PCB Bracket using Boolean operations

Basic Surface design workbench

- Commands (Types of Sweep)
- Working on exercise
- Draft analysis
- Working on surface exercise

Advanced Surface design work bench

- Commands
- Creation of Closed body, Thickened body
- Parting line, parting surface

Creation of Door Switch Bezel and add thickness to it

- How to create tooling direction and do the draft analysis to ensure the part can be taken out of the tool?
- Adding right thickness to the part and solve the issues
- Create the parting line for the bezel



Tooling feasibility

- In this section we will learn on what is a mounting feature
- How to create a locator and dog house?
- Integrating the mounting features to the base part with Boolean operations

Molding exercise

- We will learn what the Clip mounting feature is in Plastic design.
- Design considerations for creating this feature
- Tooling analysis for the clip feature

Creation of Master section

- Drafting workbench.
- Creation of detail drawing for the Components
- Views creations (basic view & section views)
- Application of GD&T in drawings
- Template settings

Assembly Workbench

- Creation of Paring line
- Creation of Tooling axis
- What is undercut and how to solve it

Door Trim design with master section

Creation of simple mold for the Rear quarter trim Cup holder

- Creation of Paring line
- Creation of Tooling axis
- What is undercut and how to solve it

Designing a mold gives a good working understanding in the molding aspects of a component



Industry-Specific Projects

Development of Car side door switch bezel

Creating the CAD model of switch bezel from the following inputs

- Given Class A surface
- Plastic component thickness
- Draft angle requirements
- Create the draft direction for manufacturing using the injection molding technique
- Class B creation by maintaining a constant thickness
- Closing surface creation based on proper draft angle and parting line for core and cavity design

Coin Holder

- Creating a solid model of coin holder from given Class A inputs
- Check for draft analysis and make modifications
- Modify class A to meet the requirements. Prepare a report of changes made to Class A
- Follow the procedure to create the solid model following plastic component design techniques
- Check if the product can be manufactured by using draft analysis.

B pillar cover

Create a B pillar from the given class A with engineering features

- Create a solid model from the given class A by following plastic design rules
- Prepare dog houses and locators for matching the part with main B pillar
- Create the location for proper fixing of part
- Add rib feature to add strength to part
- Do draft analysis with respect to main tooling direction and slider direction.



Heat Staking

Creating heat stakes for joining the plastic door applique to the metal substrate

- Design the 4 way and 2-way locators for the plastic applique
- Understand the heat staking process
- As per the design rules design the heat stakes to join the door applique with the metal part.

Should you take this course?

- Students in Mechanical, Aerospace or Automotive engineering
- Freshers looking to gain project experience on CATIA

Software Covered



CATIA is a multi-platform software suite for computer-aided design(CAD), computer-aided manufacturing (CAM), computer-aided engineering (CAE), PLM and 3D, developed by the French company Dassault Systems

Basic 2 Months Access ₹7000 Enroll Now Per month for 3 months - Access Duration : 2 months - Mode of Delivery : Online - Project Portfolio : Available - Certification : Available - Email Support : Available - Whatsapp Support : Available	Pro 4 Months Access ₹10000 Enroll Now Per month for 3 months - Access Duration : 2 months - Mode of Delivery : Online - Project Portfolio : Available - Certification : Available - Individual Video Support : 4 month - Group Video Support : Available - Email Support : Available - Whatsapp Support : Available - Telephone Support : Available - Add-ons Induatry Projects : 1	Premium Lifetime Access ₹15000 Enroll Now Per month for 3 months - Access Duration : 2 months - Mode of Delivery : Online - Project Portfolio : Available - Certification : Available - Individual Video Support : 12/month - Group Video Support : 12/month - Email Support : Available - Whatsapp Support : Available - Telephone Support : Available - Add-ons Induatry Projects : 2 - Dedicated Support Engineer : Available
---	---	---

Contact Details

 info@skill-lync.com

 +91 8939850851

 BAID Hi-Tech Park 129B,
2nd & 3rd Floor, Valmiki Nagar,
East Coast Road,
Thiruvanmiyur, Chennai - 600041.

 <https://www.youtube.com/user/edxengine>

 [skill_lync](#)

 <https://www.linkedin.com/school/skill-lync/>