



SNS COLLEGE OF TECHNOLOGY

(An Autonomous Institution)

COIMBATORE-35.



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Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai.

DEPARTMENT OF AUTOMOBILE ENGINEERING

COURSE NAME : 19AUT302 – VEHICLE DYNAMICS AND STRUCTURES

III YEAR / V SEMESTER

Unit 1 – Vehicle Design

Topic : Assumption to be made in designing a vehicle



DESIGN



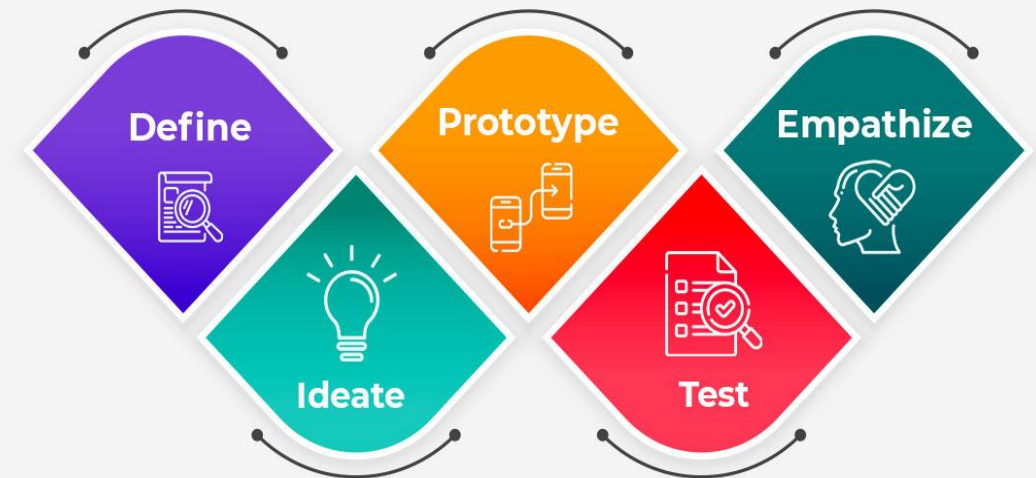
- ❖ A design is a concept of either an object, a process, or a system that is specific and, in most cases, detailed.
- ❖ Design refers to something that is or has been intentionally created by a thinking agent, though it is sometimes used to refer to the nature of something



DESIGN vs DESIGN THINKING



Design Thinking





PURPOSE



- ❖ Define the primary purpose of the automobile, such as passenger transport, cargo transportation, off-road capabilities, sports performance, etc.

REGULATORY COMPLIANCE

- ❖ Assume adherence to relevant safety, emission, and performance regulations in the target markets.

TARGET MARKET

- ❖ Identify the intended user demographic, preferences, and needs, such as luxury car buyers, budget-conscious consumers, commercial fleets, etc.



FUEL TYPE



- ❖ Decide whether the automobile will run on gasoline, diesel, electric power, hybrid technology, or alternative fuels.

PERFORMANCE

- ❖ Determine the desired acceleration, top speed, and handling characteristics based on the automobile's purpose and market positioning.

SAFETY

- ❖ Assume the implementation of safety features such as airbags, anti-lock braking systems (ABS), electronic stability control (ESC), etc.



ERGONOMICS



- ❖ Make assumptions about driver and passenger comfort, visibility, and ease of use for various controls and features.

MATERIAL

- ❖ Decide on the materials to be used in construction, considering factors like weight, strength, cost, and sustainability.

MANUFACTURING PROCESS

- ❖ Assume feasible manufacturing techniques to optimize production efficiency and cost-effectiveness.



EMISSION LEVEL



- ❖ Set targets for emissions to comply with environmental regulations and ensure a reduced environmental impact.

ENERGY EFFICIENCY

- ❖ Make assumptions to enhance fuel economy or extend the range in the case of electric vehicles.

AESTHETICS

- ❖ Establish design assumptions regarding the vehicle's appearance, taking into account brand identity and market appeal.



CONNECTIVITY AND TECHNOLOGY



- ❖ Consider integrating advanced infotainment systems, connectivity features, and driver-assistance technologies.

MAINTENANCE AND SERVICE

- ❖ Assume design choices that facilitate ease of maintenance and repair, which can impact the ownership experience.

MARKET COMPETITIVENESS

- ❖ Make assumptions about the automobile's competitive advantages, differentiators, and pricing relative to competitors.



ROAD CONDITION



- ❖ Consider typical road conditions where the automobile will operate and design it to withstand relevant environmental factors.

RELIABILITY AND DURABILITY

- ❖ Assume certain design choices to ensure the automobile's reliability and durability under normal operating conditions.



THANK YOU !!!