

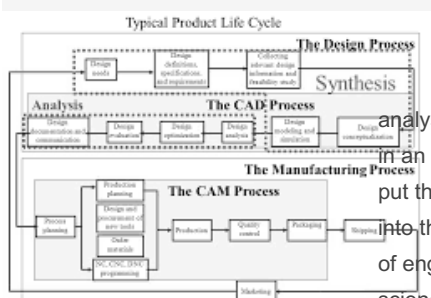
### UNIT !

**product life cycle** begins with the need of customer's and market's demands.

the two main processes include design and manufacturing.

**sub process of design** includes synthesis and analysis and **sub process of manufacturing** includes process planning and production.

### product life cycle image



### phases in product cycle (cont)

during synthesis the design takes the form of sketches or 3d representation to show the relation between various product parts.

the panner works with blueprints from the design team and may communicate to clarify changes in the design to fit manufacturing methods

analysis begins in an attempt to put the concept into the context of engineering science application to evaluate the performance of the product and it is achieved by modelling and simulation.

the outcome of analysis and design is the design documentation in the form of engineering drawings

once the PP is complete the production starts. the parts are inspected for quality stds requirements, assembled, packed, labeled and shipped

**market feedback is usually done under the design process, with this feedback the product loop cycle is closed.**

### design process

it is the formulation of plan to help an engineer to build a product.

**the fundamental elements of design** includes, establishment of objectives and criteria, synthesis, analysis, construction, testing and evaluation.

### ENGINEERING DESIGN PROCESS

CONCEPTUAL DESIGN	EMBODIMENT DESIGN	SHIGLEY'S DESIGN PROCESS
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identification of customer needs	production architecture	recognition of need
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problem definition	config design	definition of problem
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gathering info	parametric design	analysis and optimization
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conceptualization		evaluation
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concept selection		presentation
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**engineering design** is a multistep process including the research, conceptualization, feasibility assessment, establishing design requirements, preliminary design, production planning, and tool design and enters the reproduction phase.

### phases in product cycle

design phase	manufacturing phase
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philosophy, functionality and uniqueness of the product falls under synthesis	the backbone of manufacturing is process planning as it attempts to determine the most efficient sequence to produce the product
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