

# Example of essay on engineering design

[Business](#), [Company](#)



Product development is a complex process that involves various intermediate steps like product design and manufacturing design. Each step is a model which keeps evolving continuously to meet the needs of the market. Redesign is an important aspect of product development. It can either be original design (invention), adaptive design (using an existing design for another purpose) or a variant design (making modifications in existing designs according to the demands of the market). A system in technical terms is a working mechanism which has one or more inputs and outputs. Engineering design as such is involved in the modeling of such systems based on disciplines.

Modern product development comprises a few set processes. It is important to note that any commercial enterprise follows more or less a unique development strategy. There is no one ‘best’ strategy, but the models themselves keep evolving according to many factors. The stage-gate and the spiral processes are the most commonly used strategies in the industry.

While the former has a set of and parallel processes going on, the latter uses time compressed processes. Again, this is a base which maybe common, but the exact details of each step depends on the company. Identifying opportunities, designing a concept based on it, and finally implementing the concept, are the three important steps in the product development model.

Later stages include redesign and redesign implementation.

Systems Xerox Corporation serves as an example of a company that uses the aforementioned model. Design Edge is another company that uses similar strategies – however, it follows and focuses on a two stage conceptualization process. Microsoft on the other hand, follows a flexible

architecture as demands in its industry change way too rapidly. Raychem has an intensive research approach to development, while Ford has a complicated development architecture that includes assembly and testing of all outsourced/individual systems. Finally, Raytheon focuses more on the technology part of the development process.

Mechanical product design is a vast field with many existing theories that keep adapting to the new constraints of the market. In the literature of mechanical design, many authors have come up with ideas and concepts that have contributed to the models prevailing today. For instance, even in as early as 2500-150 BC, authors like Aristotle, Archimedes, and Hero published material on kinematics and fluid mechanics. Many decades later, Bhaskara introduced the concept of a perpetual machine, which is a major topic in Thermodynamics even today. The sixteenth to eighteenth centuries however, are considered the golden age in the turn of events in Science and eventually in engineering. Some of the greatest minds like Sir Isaac Newton, Galileo, Bayes and Euler belonged to this era, and published on Calculus, Vacuum, Uncertainty, and Solutions to differential equations respectively. These are some of the most useful design tools in engineering till date.

However, technology as known today developed at a rapid pace only later due to the works of Reynolds, Fisher, and Turing in the 19th century. They published on designing computers and on mechanical automation. VLSI, one of the most promising fields of engineering design, was first conceptualized by Conway way back in 1979. Further, in the latter half of the 20th century, Brown, Chandrasekaran, and Ulman contributed specifically to mechanical

systems design, which has helped in the conception of highly efficient mechanical systems.