Why the reliability engineering is important?

Reliability is not only important part of engineering design process but also necessary function in life cycle costing, cost benefit analysis operational capability studies, repair and facility resourcing, inventory and spare parts requirements determines decisions and the establishment of preventive maintainer programs. A product has value as result of its utility or performance in satisfying a need or requirements. Reliability model develops mathematical model useful in analyzing components and system reliability and availability. These dependencies such as those encountered with standby and shared load system are analyzed with Markov process. It deals with risks that an equipment goes through within its entire life cycle. It is used to identify and manage assets reliability risks that could adversely affect plant or business operations. Better reliability is a foundation to faster and safer manufacturing flow its result in lowered losses in delayed deliveries, over production, work in progress and expenditure. Components within a system may be related to one another with either serial or parallel configuration.

System redundancy may be obtained by comparisons in system may have one or more parallel components or entire system may be placed in parallel with one or more identical system. Standby system is an important area of study within reliability. Depending on the portability of failure occurring when switching to a standby unit. These systems are generally much more reliable than an active reductant. The strength of precast concrete support beam may depend on the impurities found in the water and in other material used in mixture.

Reliability design is iterative process that begins with the specification of reliability goals consistent with cost and performance objectives. This requires consideration of lifecycle costs of the system and the effect that reliability has on overall costs and system effectives. Tensile strength is the ability to withstand a tensile per compressive load. Material will typically deform first elastically and then plastically. The deformation is elastic if after the load has been removed the material return to its original shape. Hardness is the resistance of material to the presentation of an indenter. Hardness measurements are useful. Impact value is measure of toughness of material under sudden impact. Nevertheless, there may be practical limits to what can be achieved through reliability improvement alone and it is therefore only through improved maintainer design that further increase in system availability. The packaging component functional units or modularization facilities maintains. Therefore, system availability may be dramatically improved.