Reliability of Technical Systems
Tutorial #3
Due : October 12, 2010

1. Consider the probability density function.

$$f(t) = \begin{cases} 0.002e^{-0.002t} & t \geq 0 \\ 0 & otherwise \end{cases} \quad \text{for t is in hours}$$

   Calculate reliability function, failure function , and design life if the reliability of 0.95 is desired.

2. Consider a system with four-component in series which the components are independent and identically distributed with CFR. If the reliability of the system during 100 hours is 0.95. What is the MTTF of each individual component ?

3. A space vehicle requires three out four of its main engines to operate in order to achieve orbit. If each engine has a reliability of 0.9, determine the reliability of achieving orbit.

   • Please bring your solutions to the tutorial session of next week .