## Maintainability Engineering – Introduction

The maintainability engineering effort in the conception and design phase is critical to ensure that high system availability is obtained at optimum Life Cycle Support Cost. Key in the availability calculation of a system is its down time, the time required to bring a failed system back to its operational state or capability. This down time is normally attributed to maintenance activities. An effective way to increase a system's availability is to minimize the downtime. This minimized downtime does not happen at random, it is made to happen by actively ensuring that full consideration is given during the conceptual and design phase. Therefore the inherent maintainability characteristics of a system must be assured. This can be achieved by the implementation of specific design practices and validated through a maintainability assessment process, utilizing both analyses and testing. The following sub-topics cover some of these assurance activities.

- Maintainability Programs;
- Maintainability Assessment;
- Maintainability Modeling;
- Maintainability Demonstration;
- Design for Maintainability; and
- Defect Reporting and Corrective Action System (DRACAS)

The maintainability program would normally be effectively implemented by a well-defined program strategy and captured in a maintainability program plan. The responsibilities differ significantly from those of a system integrator to those of a sub component/ assembly supplier. The responsibilities of the system integrator would include the assessment of potential supplier products and eventually the allocation and flow down of the maintainability product design requirements and maintainability validation documentation. This is further detailed in the subsection Maintainability Programs.

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