



ASQ CRE Prep course

Lesson III. A. 8.

Fault Tolerance

A black and white photograph of an astronaut in a full spacesuit standing on the lunar surface. The astronaut is positioned in the lower right foreground, facing slightly towards the camera. In the background, the lunar module is visible, with its large solar panel extended upwards. A lunar rover is partially visible in the lower left. The ground is covered in lunar dust and rocks. The sky is a uniform dark gray, representing the void of space. Several white crosshair markers are overlaid on the image at various points.

What happens when?

FAULT TOLERANCE

Also called fail safe design

How critical is the component?

How likely is the component to fail?

How expensive is it to make the component fault tolerant?



Disadvantages

- **Interference with fault detection in the same component**
- **Interference with fault detection in another component**
- **Reduction of priority of fault correction**
- **Test difficulty**
- **Cost**
- **Inferior components**



Basic Characteristics

- **No single point failure causes shutdown**
- **No single point repair causes shutdown**
- **Fault isolation for identification**
- **Fault containment**
- **Variability control**
- **Reversion modes (fall back or limp along modes)**



What happens
when?



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Lesson III. A. 9.

Reliability Optimization