Take home message

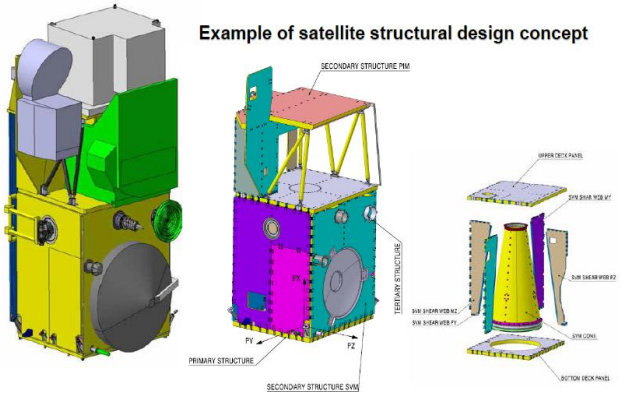
Lecture title: Space Engineering. ECSS E-32 "Structures"

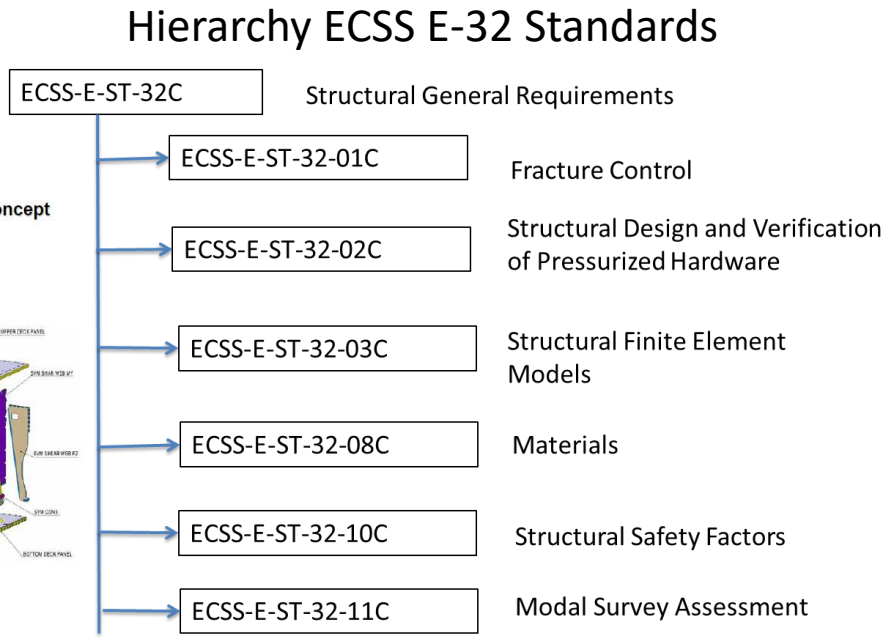
Presenter: Rafael Bureo Dacal

Summary:

Focus on the topics addressed below

- Definition and function of a Spacecraft Structure
- Structures General Requirements.
- Ground, Launch and On-orbit Environment, Loads
- Development approach, Structural Verification cycle
- Design of Structures
- Damage Tolerance
- Mechanical Analysis & Testing
- Flow Down of Requirements
- Materials





Questions for Evaluation

- What are the most important functions of a space structure?
  a. integrity, support, dimensional stability, interfaces
  b. container, color, size
  c. electric conductivity, humidity barrier
  d. data handling support, software support
- What are the most important environmental loads in the design of a space structure?
  a. steady state acc, low frequency, random, acoustics, shocks, thermal, depressurization, pressure
  b. electrical shock
  c. Lighting
  d. solar flux
- What is the difference between fault tolerance and damage tolerance?
  a. FT= fail-safe ; DT = survives a defect
  b. no difference at all
  c. small difference, depends on defect size
  d. FT is related to the failure of a defect, DM is related to the failure of a part with no defects
- What are the most important tests undertaken by a space structure?
  a. static, sine, shock, random, acoustic
  b. electric conductivity
  c. outgassing
  d. fit-check