

# **Space Technology**

## **State Exam Topics**

- 1) The space environment; special conditions; the influence of Sun and Earth
- 2) Satellite orbits; perturbation effects; orbital elements
- 3) Propulsion systems; propellants; rocket staging
- 4) Satellite structures; special materials for extreme mechanical and heat conditions
- 5) The thermal control system; heat transfer devices and heaters for space applications
- 6) The attitude control system; disturbance sources and attitude sensors
- 7) The electrical power system: energy generation and conversion methods; energy storage
- 8) The electrical power system: power control architectures for systems with solar arrays; power distribution
- 9) Satellite communications: frequency bands; antennas; attenuation and fading; atmospheric effects
- 10) Satellite communications: fade mitigation; adaptive power and modulation; the noise
- 11) Digital circuits in space; radiation effects (SEU, SEL, total dose); component selection methods
- 12) Onboard data handling: main features of space qualified processors; memory types; design considerations; EDAC

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