

#### **FOURTH YEAR**

<b>Satellite Communication Systems</b>	<b>COE405</b>
<b>Prerequisite: COE304, COE309, and COE314</b>	<b>(2-2-0-0)</b>

General Overview: Types of Satellite Communications Systems, Transmission path, Path Loss. Antennas. Propagation. Noise,  $C_0/N_0$ ,  $C/N$ , Saturation Flux Density, Effective Isotropic Radiated Power, Up - Link Power Received, Down -Link Power Received. Orbital Mechanics: Basic Equations. Special Orbits. Geometry and Movement. Constellations. Real World Effects. RF and Licensing Issues. Detailed Link Budget Considerations: Antennas. Transmitters. Propagation and Rain. Receivers, LNAs, Figure of Merit. Total System Performance, Multi Beam coverage. Earth Station: Earth Station Organization , Transmitting and Receiving Equipment, Redundancy. Additional Topics: Telemetry and Tracking. Power Limitations. Spacecraft Control. Reliability.