



## **ES01 - Basic TV Earth Station Operations (Theory)** **Course**

Aimed at absolute beginners to intermediate level operators (including MCR staff), this two day course will equip participants with the theoretical knowledge to undertake basic operations of a permanent satellite earth station for broadcast TV grade transmission and reception.

**Pre-requisites:** None

**Duration:** 2 days

**Number of students:** 15 maximum

**Venue:** Luton, Beds, UK; or customer premises

### **Course Syllabus**

#### **Day One**

Introduction to satellites

Basic history

Satellite Orbits (LEO, geostationary & inclined)

Types of satellite

Satellite Configuration

Uplink & Downlink frequency bands

Polarization

Transponders – organization and usage

Link Budgets – overview

System Principles Overview

Geostationary satellite movement

Antennas and tracking systems

Beacon receivers

Video & Audio

MPEG Encoding

DVB Modulation & FEC

Upconversion

Amplifiers

Redundancy systems

Phase combiners

Link Performance – FEC (Forward Error Correction) and BER (Bit Error Rate Ratio)

Monitoring & Communications

#### **Day Two**

Working with a Satellite

Finding & identifying satellites - carriers, beacons & polarisation

Understanding and using a Spectrum Analyzer

Uplink operations - Clean carrier, Modulation, FEC

Interference – identifying and avoidance



#### Accessing Satellites

- Control Centres and their role
- How to access the satellite
- Protocols, alignment etc.
- 'Talk up' & 'Talk down' procedures

#### Safety issues

- Microwave hazards
- Electrical hazards
- Trip hazards
- Weather

#### Assessment

**Bookings:** please email [training@beaconseek.com](mailto:training@beaconseek.com) to enquire further.