

Course Description

An accelerated version of the traditional Nokia (formerly AG Communication Systems) GTD-5 maintenance and troubleshooting course with updated, full-color block diagrams and frame images.

This course was designed to jump-start students with little or no switching knowledge to a competency where they can perform Level-1 card-level repair on virtually any of the main modules in the GTD-5. Ancillary equipment such as SS7 links, recorder announcers, ringing generators, and gateways such as for remote-access equipment, the CPX, Extension Complex, billing and remote switch monitoring are also discussed as needed. Troubleshooting techniques are taught pro-actively, including Maintenance-window procedure.



Envisioned as a minimum 5 day track, the actual course length and content is flexible, and can be adjusted depending upon the needs of the class. A 10 day version of the course provides the traditional maintenance- level background of all switch modules, and many support-level concepts, equipping students to handle most problems independently, while providing an excellent background for NOC and TAC interaction.

Target Audience

Technical staff such as Central Office Technicians, NOC/SCC, certain management personnel, and others responsible for the operation and maintenance of the GTD-5 switch who may require cross-training.

Prerequisites

A basic understanding of telecommunications and switching principles is helpful due to the accelerated nature of the course.

Course Outline

Module 1: Telephony Basics

- Introduction & Switching History
- Tip and Ring, T1R1, E&M
- Audio Signals
- Decibels
 - Negative Talk Battery
- Lines and Trunks
- Digital Signals: ADC, DAC
- PCM: frequency sampling, bits, binary, binary practice, amplitude sampling
- DS1, AMI, B8ZS
- Binary
- Stored Program Control Systems
- PSTN

Module 2: GTD-5 Theory of Operation

- Time-Space-Time
 - Analog-To-Digital Conversion
 - Time Switch (TSW)
 - PCM and PCMR
 - Space Switch (SSW)
 - Time Slot Count (TSC)
 - SSW Matrix
 - Blocking & Concentration Ratio
- A Phone Call - Basic PCM
- The GTD-5 Complex
 - What is a GTD-5 EAX?
 - Extension Complex
 - Switch Capabilities

Processor Types: APC, TPC, TCU, RSU, RLU, MXU, RDT, SLC

Memory Types: CMU, DM

Front-End Modules

PCM Modules: BUNW, RSNW, RLNW, TSW, SSW, Sub/Superordinate Devices

Phone Call Sequence of Events

- Review

Module 3: Input-Output Commands

- IO Terminals

Terminal Assignments

High Speed Terminal Limit

- GTD-5 IO Commands

Command Syntax

Operator/Device/Device Assignments

Summary

- DIAG vs ROUT

DIAG, ROUT

RUN and ITER

- PUT vs FORC

- Sample Commands

Module 4: Documentation

- Support & Provisioning Documentation

Users Guides

Using Worldview

Practices - AE/GTE/AGCS

Technical Specification - Bellcore, Telcordia

- Card & Equipment Documentation
 - GTD-5 Engineering Documents
 - FA
 - FB
 - FB-Drawing Stock List
 - FE
 - EL
 - ECD
 - CRL
 - EC
 - CC
 - RW
 - PLRG
 - HDWM
- Review

Module 5 : Maintenance

- Sample Maintenance Commands - DUMP STAT SYSA, EXAM DN, DUMP..SUBO, etc.
- Alarms
- Diagnosing
- Dump Image
- Dump Status
- Examine - EXAM DN, EXAM EN, EXAM various hardware, etc.
- Recent Change (Database)
- Reporting - REPO NSM, REPO TDA, REPO ED, etc.
- Setting - SET MTU/set mte, SET STAT, etc.

Module 6 : Troubleshooting

- Binary and Hexadecimal
 - Hex Words, Bytes, Nibbles
 - Convert Hex to Bin
- Diagnostics
 - PRIN3.3 vs PRIN4.4
- Part 15 - Repair Manual
- Level 1 Card Repair
- Level 2 Card Repair
- Level 3 Card Repair
- System Malfunction Analysis (SMA)
- 1.019 NMI
- ACDC Menu Processing
- ACDC Keypad Processing
- Review

Module 7 : Operations Gateway

- The Extension Complex - Role of the OG
- Operations Gateway:
 - Logon, Logoff
 - UNIX Commands
 - Batch Interface Commands
 - IOMM Commands
 - Connectapp AMA Commands
- Review

Module 8 : Block Diagrams

- MP
- TSW/TSWE
- ALU/ELU
- SSW/SSWE
- etc.

Module 9 : Frame Images

- ACIF thru TPCF frames
- 914A, 914E, & 914EX
- Full color frame images that match the main Functional Block Diagram coloring

Notes

Can be coordinated with the GTD-5 Support Course and/or the GTD-5 ACDC Emergency Procedures Course for a customized curriculum.

Delivery Method

Instructor-Led with numerous labs and exercises.

Equipment Requirements

(This apply's to our hands-on courses only)

This course requires access to customer GTD-5 Switch or Switches for Non-Intrusive training.

BTS always provides equipment to have a very successful Hands-On course. BTS also encourages all attendees to bring their own equipment to the course. This will provide attendees the opportunity to incorporate their own gear into the labs and gain valuable training using their specific equipment.

Course Length

5 Days