The purpose of this distance learning course is to provide NATO CIS Transmission supporting military and civilian personnel with fundamental knowledge and practical skills to integrate, and securely operate, maintain and troubleshoot NATO Communication Services specified in the NATO Consultation, Command and Control (C3) Taxonomy in federated mission networks. These services include Transmission, Transport, and Communications Access Services.

Students will explore how DCIS will support extension or deployment of Transmission Services and their integration with networks. Students acquire knowledge and skills supporting future courses.

This course is a Foundation category course in the DCIS Training Framework, as illustrated, below; it serves as pre-requisites for a variety of courses:

This theory and practical simulation-based skill focussed course (twinned with the mandatory follow-up course NCISS Course 965) will provide the most cost-effective and
efficient blended learning experience. The face-to-face nature of that course pair enables Human Networking between operators and maintainers.

Successful students requiring higher level qualification (e.g. Cisco Certified Networking Entry-Level Network Technician (CC-ENT) or Associate (CCNA) Routing and Switching (CCNA R&S)) have the option to continue their training path as illustrated, below:

4. Learning Objectives

Upon completion of the course, the student is prepared for NCISS Course 965 and will be able to:

- Appraise NATO networks and Architectures as globally connected, consisting of local and wide area networks (LAN and WAN).
- Describe the devices and services used to support communications in changing NATO data packet-based network environments.
- Assess the purpose and importance of NATO networks and devices supporting the internetwork Operating System (iOS), and uses available interfaces to configure devices.
- Explain purpose and role of protocol suites, models, and standards in packet based networks; the student explores and explains how data is transported across local and remote networks to and from resources supporting services.
- Identify, describe, select, and simulate connecting media types used in NATO Transmission Services based on introduced topologies for wired and wireless LAN and WAN Services.
• Identify and describe characteristics of media access methods, controls, and types.
• Identify and describe fundamental Ethernet operations, addressing and address resolution concepts, and compares and configures local Distribution Service devices, such as a switch.
• Describe, explain and compare frameworks and concepts used in Transmission, Transport, and Packet-based Communication Access Services.
• Configure Communication Service devices, such as a router.
• Explore the NATO Consultation, Command and Control (C3) Classification Taxonomy.
• Describe and explain addressing and delivery methods used in NATO Transport and Communication Access Services.
• Determine the best suited protocols based on service requirements, such as reliability.
• Describe, compare and explain current addressing schemes used in NATO Packet-based Communication Access Services.
• Configure networking devices and uses common utilities to test connectivity.
• Explain and describe basic concepts of addressing and network separation in NATO Packet-based Transport and Communication Services.
• Designs, implements, and calculates addressing schemes as directed.
• Explain and describe functions and protocols moving data across NATO networks, using Communication Service protocols and services that support NATO Core Enterprise and Community of Interest Services (CES and CoI).
• Identify, explain and describe NATO Communication Service implementations in small and larger networks as well as security vulnerabilities and mitigation.
• Configure network devices, to include hardening, back-up and restore features and conducts basic verification and troubleshooting commands.
This course does not qualify students by itself. Successful students are eligible to and must proceed to NCISS Course 965 to gain the qualification.

The student will be accepted on the course if he/she meets all of the following requirements:

1. Been assigned to a technical position at a:
   a. NATO static DCIS Anchor Station, or
   b. NATO DCIS Deployed Unit (e.g. NATO CIS Group, NATO Forces Structure, NFS) operating transportable/deployable transmission systems.

2. Met the background knowledge prerequisites for this course (for all candidates, static and deployable).

Officer

Non-Commissioned Officers (NCO) and Senior NCO involved in DCIS

Civilian equivalent

According to STANAG 6001: English SLP 3332

NATO Unclassified (note that for the follow-on course a NATO Secret Clearance will be required).
10. Course Length

The course is a self-study, instructor-facilitated course, but limited to five (5) weeks, based on one online module with 11 chapters.

The course will be followed by an in-house course (NCISS Course 965) at NCISS Latina.

Course chapters and modules are of various lengths; students and their supervisors should expect a minimum of four (4) hours course work per day; this time might vary based on language and other pre-requisite knowledge and skills.

11. Special Instructions

Training Coordinators need to ensure that students can attend both this and the mandatory following course with the same iteration number (e.g. 963 004 and 965 004).

The students are working online, using the Cisco online learning environment provided by the NCISS Cisco Academy.

Hardware and software for this course will not be provided by NCISS. Students will require access to the Internet, and the below listed minimum hardware and software:

- A computer (for online content and practical exercises) or tablet (online content, only) with Internet connectivity; the computer must meet minimum pre-requisites for installing the Cisco network simulation software (Cisco Packet Tracer).
- Internet connectivity throughout the course duration.
- An up-to-date and patched browser software as of the Cisco Networking Academy platform requirements (available on www.netacad.com).

Students not meeting the assignment and background knowledge criteria may attend ONLY with the explicit recommendation of the NCI Agency Network Services and IT Infrastructure (NS & II) Service Line, Transmission or DCIS Service Operations Managers, provided they have met the security clearance requirement.

12. Class Size (Maximum/Recommended/Minimum)

8/6/4
13. Nomination Procedure

As specified on www.nciss.nato.int

14. Pre Course Study Material

- None

15. Location

The course is conducted online Cisco online learning environment provided by the NCISS Cisco Academy under www.netacad.com.

16. Background Knowledge Prerequisites

**Essential Prerequisites:**

- The students must have basic computer skills including the use of mouse, and keyboard.
- The students must be familiar with the use of a graphical user interface (GUI) such as Microsoft Windows™.
- The students must be familiar with the use of modern web browsers (recommended Internet Explorer or Chrome).
- Students must have fundamental mathematical and problem solving skills.
- Students must be able to attend the mandatory follow-up course.

**Desirable Prerequisites:**

- Student would benefit completing NCISS C4ISR Orientation Course for Officers (NCISS Course 101) or NCO (NCISS Course 103) that explain the wider NATO CIS Environment.