The course is designed to give NATO Deployable CIS (DCIS) Engineers and Senior Operators confidence in safely and securely operating and maintaining DCIS Target Architecture systems supporting Communications Services (ComS). Engineers will analyse the design, the hardware, and the routing and switching protocols used in Transport and Communication Access Services, as specified in the latest Baseline document. To securely and efficiently operate the system, students will apply select CIS Security Service aspects within the NATO Consultation, Command and Control (C3) Taxonomy in federated mission networks.

Students will be prepared to support deployed network operating centres and nodes scaling up to support Major Points of Presence (PoP) and larger.

Successful students may request advanced Service Management and Control (SMC) privileges on NATO networks following established procedures.

This course is a Special category course and should be considered after successful completion of all pre-requisites specified, as illustrated, below:
4. Learning Objectives

Given the pre-requisites and the Advanced Distance Learning (ADL) pre-course study material – see paragraph 14 and 16 – upon completion of the course, the qualified student will be able to:

- Describe the context of NATO Services in DCIS, and how Communication Service Engineering supports the structure.
- Describe the context of Federated Mission Networking (FMN), and how DCIS a Communication Service Engineering supports this structure.
- Maintain and harden Transport and Communications Access Service devices to NATO standards, including full operating system recovery.
- Strengthen Communication Access Service availability using NATO approved redundancy protocols.
- Manage Packet-based Service addressing and routing using Variable Length Subnet Masking (VLSM), summarization and redistribution.
- Configure and troubleshoot Communication Services supporting Communication Access Service multi-area networks.
- Apply advanced, secure Communication Service routing techniques, such as network access control, route-tagging, route-filtering tunnelling and virtual routing and forwarding (VRF).
- Align DCIS Communication Services and supporting capabilities and systems with the NATO Quality of Service (QoS) architecture.
- Integrate Communication Service QoS with tunnelling using policy-based routing (PBR).
- Interconnect Communication Edge Transport and Core Services to external Networks or Network Elements using BGP.
- Configure and troubleshoot the advanced Communication Service NATO interior gateway protocols.
- Deploy advanced Transport Services supporting multiprotocol label switching (MPLS) with traffic engineering.
5. Qualification

NATO DCIS Communication Services Support Engineer.

6. Student Criteria

A student will be accepted on the course if they meet all of the following requirements:

1. Be assigned to a NCS or NFS HQ or unit where the relevant NATO DCIS Services will be employed on operations and / or exercises;

2. Background Knowledge Prerequisites for this course (see paragraph 16).

7. Rank

- Selected Officer
- NCO in an Engineering Support Function
- Civilian equivalent

8. Language Proficiency

According to STANAG 6001: English SLP 3332

9. Security Clearance

NATO Secret (Students must provide proof of clearance upon registration)

10. Course Length

10 working days (2 weeks of 5 days, each)

11. Special Instructions

Students not meeting the assignment and background knowledge criteria may attend ONLY with the explicit recommendation of the NCI Agency Network Services and Infrastructure DCIS Service Delivery Manager, provided they have met the security clearance requirement.
Training Coordinators need to ensure students complete the Pre-Reading specified under number 14. To ensure course quality for fellow classmates, failure of success in the entry test may lead to the student not fully participating in the course.

This course is work intensive; hence we suggest students consider using the Student Quarters’ accommodation.

12. Class Size (Maximum/Recommended/Minimum)

6/6/4

13. Nomination Procedure

As posted on www.nciss.nato.int

14. Pre Course Study Material

- NCISS 612 DCIS ComS Engineering Pre-reading (ADL course 130, via https://jadl.act.nato.int/) – Considering the instructions in number 11.

15. Location

The course is conducted at the NATO Communications and Information Systems School (NCISS), Latina Italy.

16. Background Knowledge Prerequisites

**Essential Prerequisites:**

- Successful completion of NCISIS DCIS ComS Foundation Courses 964/967 and 966/968 or possess a valid Cisco Certified Network Associate Routing & Switching (R&S) certification with 12 months of NATO DCIS experience AND

- Have passed an appropriate NCISIS System Level course (e.g. NRF DCIS, CALI Operator)

- Be assigned to a DCIS environment AND

- Have completed the pre-reading material specified in paragraph 14
Desirable Prerequisites:

- Experience at a DCIS Minor or Major PoP supporting Node for about 9-12 months

17. Modules

The following modules will be covered and include both theory and practical, hands-on lessons:

- Entry Test
- NATO Communication Access and Transport Service device and redundancy set-up
- NATO Communication Access and Transport Service device configuration, backup and recovery
- NATO Communication Access Service Routing in Packet-Based Service networks
- NATO Communication Service routing management techniques
- NATO CIS Security Services supporting Communication Services, to include device access control and route filtering
- NATO Communication Transport Service Tunnelling
- NATO Communication Service virtual routing and forwarding
- NATO Communication Service QoS
- NATO Communication Transport Service in DCIS Target Architecture Transport Service Networks
- Final Assessment Theory
- Final Assessment Practical