Marine Corps Communication-Electronics School

Communication Training Battalion

Expeditionary Communicator

Expeditionary Communications Proof of Concept Course 1-23

14 February 2023

Expeditionary Communicator

A Leader of Marines that is tactically and technically proficient

21st Century Learning trained at Marine Corps and Naval C2 communication systems Formal Learning Centers

Self-reliant and capable of operating and maneuvering across distributed operational environments

Effective in any domain: Sea / Afloat, Land / Ashore, Air, Cyber, and Space

Capable of securely integrating MAGTF networks into Joint, Combined, Coalition, and Host Nation infrastructure

Vigorously enforces high standards of performance and conduct and embraces the warrior ethos

Embraces lifelong learning through specialty career progression training

The Expeditionary Communicator is an "elite warrior with the physical and mental toughness, tenacity, initiative, and aggressiveness to innovate, adapt, and win in a rapidly changing operational environment." – 38th CPG: Future Force Development

The Network must enable the Expeditionary Communicator

The Premise for an Expeditionary Communicator

The rapid pace of technology advancement and the demands of great power competition require highly trained enlisted leaders, while emerging doctrine indicates formations at the edge of the battlespace will be small, thus minimizing the number of communications Marines deployed in support of command and control.

This creates a requirement for an expeditionary communicator that combines the most critical skillsets of Transmissions, Networking, and Data Systems Marines.

The solution is to train *multi-disciplinary* communications Marines in expeditionary skillsets that enable them to operate *independently*, ensuring that commanders at all levels possess the *organic capability* to exercise command and control, in any environment, across the full range of military operations, *in the smallest formation at the tactical edge*.

Expeditionary Communicator Scope

Future Communications Requirement

- Two Marines can provide everything from inter-team / squad communications up to BN-sized forward COC setup and operations at the tactical edge.
- Individual communicators are tech-savvy with current communication disciplines to provide all forms of communications in a small form-factor function with support of a full reach-back network.
- Communicator with understanding of peer competitor and denied, degraded, contested environments.
- Highly flexible, with multiple skill sets to support different warfighting functions and C2.
- Inherent planning and mission analysis for rapid changes of mission or environment.
- Understanding of spectrum and digital signature management.
- Able to operate in multitude of environments and missions.
  - Land, sea, shore / jungle, desert, artic, urban
  - Helo, vehicle, foot mobile, and small water craft platforms
- Understanding of Joint and Allied partner communication integration.

Expeditionary Communicator Common Core Skillsets

Common Core Skillsets

Plan the Network
To develop architectures capable of integrating USN / USMC / Joint / Combined / Host Nation transmission and information systems, which include networking and data services

Install the Network
Conduct physical integration and installation of USMC systems

Secure the Network
Secure C2 architecture from enemy cyberspace operations

Operate and Maneuver the Network
Be able to operate and maneuver USN / USMC transmission and information system equipment sets in all domains in a denied, degraded, intermittent and limited (DDIL) environment

Maintain the Network
Provide continued operation of USMC transmission and information systems

Assess the Network
Identify and facilitate the collection of intelligence regarding cyberspace activity in the DODIN, to include the electromagnetic spectrum

Littoral Operations Contested Environment (LOCE)
Reasonable expectation that USN will be on-site, persistent presence
(sea-based)

Distributed Maritime Operations (DMO)
High likelihood operation is independent of other units
>30 days

Expeditionary Advance Base Operations (EABO)
High likelihood operation is independent of other units
< 30 days

Augmented by Advanced Skillsets tailored to support each Domain

120 NM

Key Attributes:

- Connect C2, ISR, and tactical fires systems from across domains
- Share relevant data to and from multiple domain C2, ISR, and tactical fires systems
- Display C2, ISR, and tactical fires data across domains
- Resilient C2 nodes with redundant capabilities

Considerations:

- Fighting across the Range of Military Operations (ROMO) in a saturated electromagnetic spectrum.
- **T/O**: x 5 organic C2 nodes, Bn 1 – 24, Bn 2 – 21, Rifle Cos – 15 with organic SI/EW teams
- Rifle Cos 8 – 12 hours of FSC (ground/airspace battle tracking and deconfliction)
- **T/E**: Requirement – integrated energy efficient/ resilient system of nodes

Baseline EC USMC Requirement
15 x 24 Battalions = 360 EC BICs

The 17% Reduction in the Comm Section T/O to 66 Marines creates the requirement for a minimum of 15 Expeditionary Communicators, (5 in H&S Co, 3 per Rifle Co), per Inf Bn.

Concept: Success in a multi-domain, contested environment against peer competitors requires a more flexible and redundant approach to command and control nodes. This approach envisions more capable and enhanced (people/systems) company nodes that can episodically satisfy aggregate Bn control functions. Rather than adding additional large, less mobile C2 nodes (e.g., traditional main/fwd), this model expands company HQ ability to assume control functions while other nodes displace or go dark. This approach is dependent on a disciplined investment strategy of the "right rank and right education/training" able to expertly employ integrated system of nodes that operate simultaneously to create seamless resilience and flexibility in execution.

Expeditionary Communications Proof of Concept Course (POCC) 1-23

3 Oct 2022 to 22 Nov 2022 (37 Training Days)

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Mission

"Communication Training Battalion will host a Expeditionary Communications Proof of Concept course that will combine critical skillsets from the 062X, 063X and 067X MOS's to support expeditionary communications skillsets as multi-disciplinary independent operators, in support of Force Design, EABO, and similar concepts, ensuring commanders at all levels possess the organic capability to exercise command and control, in any environment, across the full range of military operations, in the smallest formation at the tactical edge."

Class Composition

E-5: 7 E-4: 9	0621: 6 0631: 3 0671: 2 0627: 4 28XX: 1
I MEF: 6 II MEF: 2 III MEF: 7 MARFORPAC: 1	Over 30 Nominations

16 Students

All Marines are slated for upcoming deployments

Design Concept

- Resident Course
- Training Days:
  - POCC: 37 Training Days
  - Final POI: 75-80 days
- Integrated T&R: 0629, 0639, 0679, 0602, 8071
- Class Size:
  - POCC: 16
  - Final POI: 20-30
- Target Population: Cpl - GySgt
- Screening Requirement: Yes

Facilitation	Evaluation
• Lecture Method • Guided Discussion • Practical Application • Tactical Decision Game • ECC Handbook	• Online Quizzes • Phase surveys • Prac App Test • Field Exercise

ECC

DEVELOPMENT FEB to SEP 2022 → PILOT COURSES OCT 2022 to NOV 2023 → PRODUCTION JAN 2024 +

Expeditionary Communications Proof of Concept Course (POCC) 1-23

3 Oct 2022 to 22 Nov 2022

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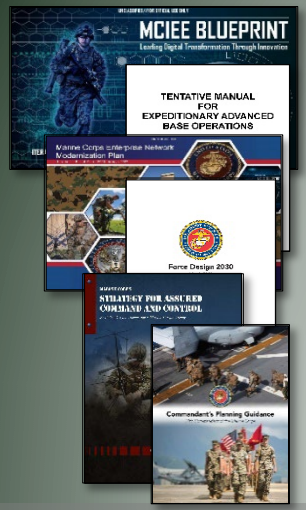

PHASE I – Intro to ECC (Oct 3-6)

- Force Design 2030
- MAGTF, MLR, JTF Missions
- D2C2
- EMCON, PACE
- Mission Planning
- COMSEC
- CMCC
- FFT
- CIP/ COP
- TAK

PHASE IV – Tactical Radio Systems (Nov 1-10)

- Wave Theory
- AN/PRC-160
- HF FEAK
- DAGR
- AN/PRC-117G
- MUOS
- ANW2 SIPR
- CPA, TAC Chat IP

Columbus Day 96 (Oct 7-10)

Veterans Day 96 (Nov 11-14)

PHASE II – Network Fundamentals (Oct 11-17)

- OSI Model
- IP's
- Routing & Switching
- VOIP, Chat, VTC
- Active Directory
- Imaging Machines
- Network Encryption Devices
- DMCEN

PHASE V – STRAPEX (Nov. 15-17)

- OP Check all Equipment
- Pull full services
- FEX planning
- Pack out

PHASE III –Satellite Systems (Oct 18-31)

- Satellite theory
- NOTM-G
- MCSW-X
- Kymeta
- Star Link
- ISP

PHASE VI – FEX (Nov 18-21)

- 4 Stations
- Each station simulates different environment
- Required to provide services ISO C2

Closeout (Nov 22-23)

- PMCS
- AAR, EOCC
- Check out

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- Class Size:
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- Target Population: Cpl - Sgt
- Screening Requirement: Yes

Challenges

- Equipment Support and Availability
- Instructors – CTR Personnel (i.e. L3Harris)
- Cadre (Facilitators) – CTB Marines (06X9)
- Range and Training Environments

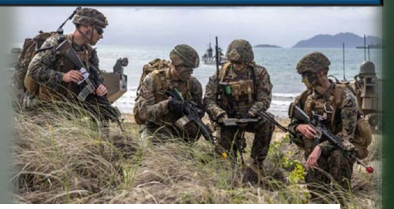
POCC 37 Training Days

(Not including weekends, as required)

Final POI may be 75-80 training days

ECC

DEVELOPMENT FEB to SEP 2022 → PILOT COURSES OCT 2022 to NOV 2023 → PRODUCTION JAN 2024+



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Expeditionary Communications POCC 1-23

Week 1 Oct. 3-6, 2022 (Phase 1)

ECC POCC 1-23 officially kicked off on Oct. 3, 2022. The end state is to combine critical skillsets from the 062X, 063X and 067X MOS's to support expeditionary communications skillsets as multi-disciplinary independent operators, in support of Force Design, EABO, and similar concepts. This will allow commanders at all levels possess the organic capability to exercise command and control, in any environment across the full range of military operations, in the smallest formation .

During week 1, the students learned about the MAGTF, JTF and MLR constructs to ensure they understood the different functions of different units. They went over small unit communication planning to include COMM Smart Packs, Site Surveys, EMCON and PACE Plans. They dove deep into C2D2, digital signature management and different methods and techniques to use to help mitigate and utilize communication assets in this type of environment.

Closing out the week, the students begun their intro into Tactical Assault Kit (TAK) basic user functionally and what it can provide to a command and KMI local element procedures.

ECC is focused on technically proficient along with being able to physically complete any mission on the tactical edge. 29 Palms MCCS Warrior Athlete program has developed a P.T. plan to help train the Marines .

ECC Marines conducting communication planning building smart packs and PACE plans.

ECC Marines conducting site survey to map out and identify usable existing infrastructure.

ECC Marines conduct ruck based P.T. in preparation for the FEX.

Expeditionary Communications POCC 1-23

Week 2 & 3 Oct. 10-21, 2022 (Phase 1)

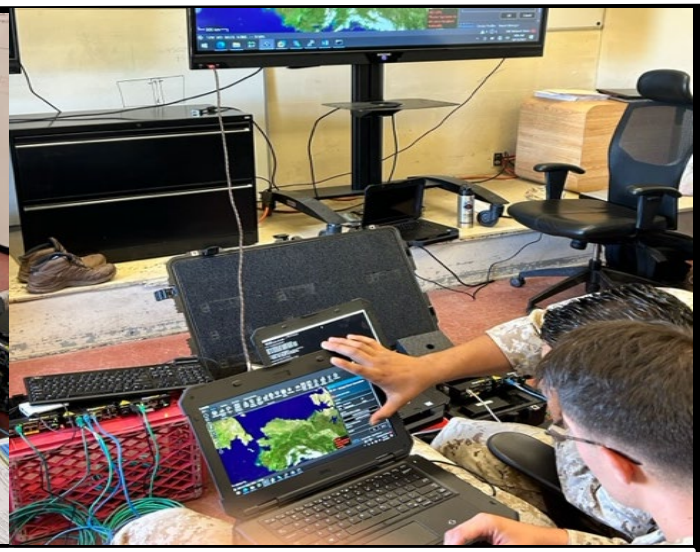
ECC POCC 1-23 progressed into Phases 2 and 3 learning about networking, data fundamentals working on routers, switches, encryption devices and peripheral equipment. The class then began to shift into wide band satellite systems (WBSS).

During week 2 phase II, the students continued to work on TAK server and end user device build out. They then moved into basic network and data fundamentals to baseline them for hands on with equipment. ECC Marines then progressed into configuring and setting up the WSM-L with provided configurations. They also learned about in-line encryption devices such as the KG-175D and KG-250XS and how to configure and set those devices up. The 0630 WO class on deck came down and spent a day with the ECC Marines helping tune their networking skillsets.

During week 3, the Marines continued phase II refining their networking skill sets getting to conduct individual practical application of the equipment they learned the week prior. The Marines then moved into phase III WBSS. They begun with overviews of the satellite infrastructure and spectrum. The then leaned into equipment training with the MCWS-X and CMB-400 modem.

The Marines were visited by the Communication Chief of the Marine Corps and were able to conduct a Q&A with him.

ECC Marines conducting router and switch configuration with the WSM-L.



ECC Marines building and setting up Tactical assault kit servers and EUD's

ECC Marines conducting peek and pull with the MCWS-X

Expeditionary Communications POCC 1-23

Week 3 & 4 Oct. 10-21, 2022

ECC POCC 1-23: Phases 3 & 4 Training Events

- HF Theory and NVIS classes
- Field Expedient Antenna buildout
- Harris CPA training
- PRC-160 training
- NVIS HF communication shots
- PRC-117G ANW2
- TAC CHAT IP training
- Tactical Key Loader Training (TKL)
- SPEED HF, PTP Analysis and RCA training
- MUOS overview
- MUOS Live simulation
- Spectrum Analyzer training;
  - Marines used this to learn what different waveforms look like and how often they transmit and what it looks like in the spectrum.
- Kymeta overview and basic operations.
- NOTM-G configuration and setup.
- PACSTAR ROIP Demo.

ECC Marines setting up the NOTM-G.

ECC Marines learning what different radios waveforms look like on different power setting using spectrum analyzer.

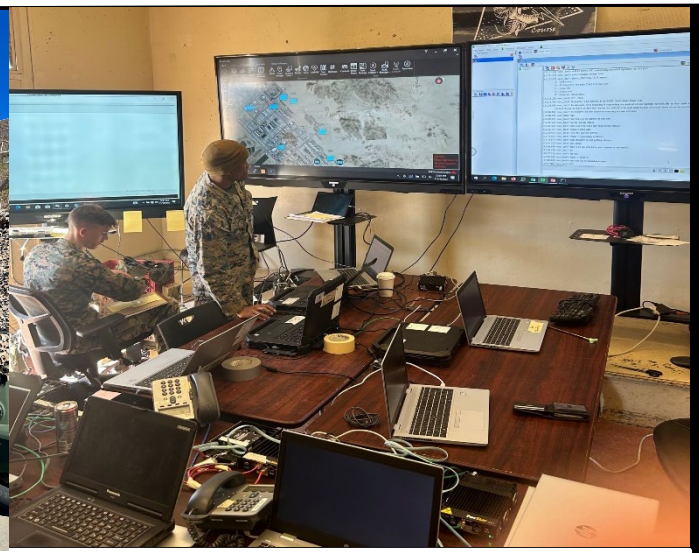
ECC Marines receive overview of the Kymeta system.

Expeditionary Communications POCC 1-23

FEX Nov 16-19, 2022

- Culminating event putting each two man team in different environments having them setup communication equipment to facilitate Commanders information exchange requirements.
- Marines utilized all the different training received over the course seeing how it all ties together.
- 4 Simulated Environments with C2D2
- Austere (ruck insert based)
- Urban (no physical signature outside of bldg. allowed)
- Mobile C2 platform build out
- Small standard COC
- Focused on EMCON and D2C2
- Intel and Operational injects throughout
- Communication planning and analysis done by each team for each event
- COC operations and battlefield tracking

Mobile C2 Platform Event.



Standard COC Event

Austere environment ruck insert.

Urban C2 setup event.

POCC 1-23 Overview

- The POCC was a success, with students getting a lot of value from the instruction.
- All pre-identified issues / concerns were valid.
- The FMF has significant interest.
- CTB now has metrics for the next phase of ECC.

POCC 1-23 Overview

Sustains:

- Complete communicator
- General course structure

Improves:

- Week 1 FEX as baseline
- More / better FEX and prac app opportunities
- After hours instruction
- Networking labs
- Fires / ISR / TDLs integration (extent TBD)
- General curriculum tweaks (+/- time)

Communication Training Battalion

Expeditionary Communications Course Production POI (Full)

ECC

DEVELOPMENT
FEB to SEP 2022

PILOT COURSES
OCT 2022 to NOV 2023

PRODUCTION
JAN 2024 +

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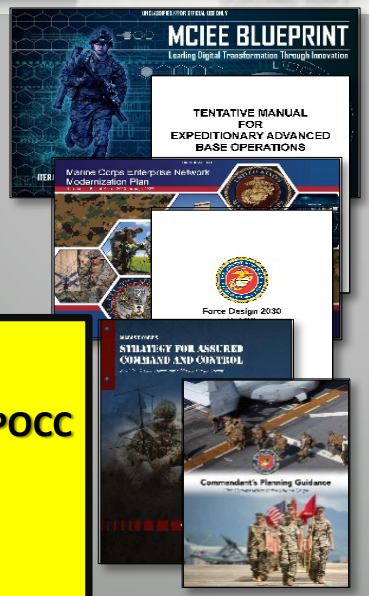


Way-Forward

- First POCC will inform second, longer POCC
- Gather AARs from FMF Marines post-deployment/exercises
- Develop final POI
- Gain resourcing
- Create necessary MOS and adjust FMF structure (zero-gain)

PHASE I - BRILLIANCE IN THE BASICS (10 TD)

Core:

- OPSEC
- Cybersecurity
- Radio Procedures
- COMSEC
- Classified Handling
- iAPPS
- SKL
- FF Tracking
- Fiber
- Iridium

Core + :

- Masking Techniques
- COP Basics

PHASE II - SYSTEM FUNDAMENTALS (20 TD)

Core:

- Radio Theory
- Net Fundamentals
- Data Fundamentals
- PRC-160
- PRC-163
- PRC-150
- PRC-117G
- Field Expedient Antenna
- GCCS-J
- TDL (Link 16)
- FFT Shout Nano

Core + :

- UAS FMV Planning
- OSRVT Employment
- Kymeta
- MMT
- MUOS and ANW2
- Space Resources

PHASE III - ADVANCED COMM (30 TD)

Core:

- VSAT-S
- NGEN SATCOM
- NOTM-A
- NOTM
- GBS
- C2 Applications
- RRK
- BGAN
- TAK

Core + :

- SATCOM Plan
- Long-haul Comm Plan
- Masking Techniques, EMCON, C2D2
- COP Integration

PHASE IV - COMM ENVIRONMENT (10-20 TD)

Core:

- Joint Interoperability
- RIB Ops
- Ground, Assault Support Integration (DI)
- RZR

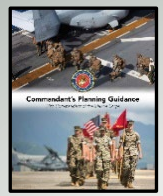
Core + :

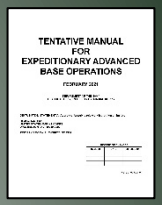
- FEX Evolution – Bridgeport, MCAGCC, NAB Coronado, MITSC, LVC Sim

Questions

Planning / References / Requirements

Guiding Principles





- **Planning Documents**
  - 38th CPG dtd Jul 2019
  - 38th CMC Force Design 2030 Report dtd 25 Mar 2020
  - Marine Corps Strategy for Assured Command and Control dtd Mar 2017
  - MCIEE Blueprint 1.0 dtd Mar 2019
  - Marine Corps Enterprise Network (MCEN) Modernization Plan 3.7 dtd 5 Mar 2020
  - Force Design 2030, Naval Tactical Grid / Assured C2 (Future Network) OPT, 3 Apr 2020
  - COAG Infantry Battalion IPT Brief v9, 31 Mar 2020
  - 2d Marine Division Employment of Communications “Infantry Battalion S-6”, 29 May 2020
  - 729 Marine Infantry Battalion T/O dtd 12 Jun 2020
  - COAG Marine Littoral Regiment Overview, Jun 2020
  - Tentative Manual for Expeditionary Advanced Base Operations dtd Feb 2021

Supporting Concepts

- Stand in Forces
- EABO concept
- Small, flexible, independent, multi-discipline skill set units
- LCR employment
- Operating in denied, degraded, contested environments
- Heavy reliance on different advancement in technology

Director, IC4 Request for an Expeditionary Communications Program of Instruction 28 Oct 2021

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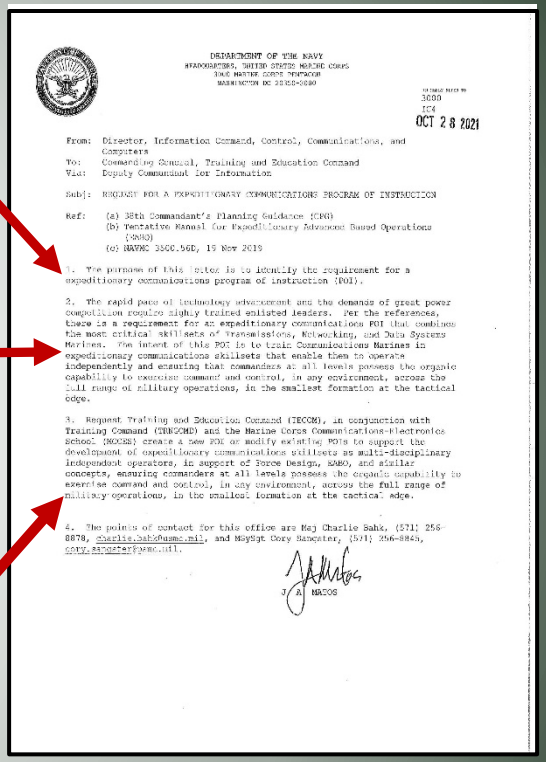
1. *The purpose of this letter is to identify the requirement for a expeditionary communications program of instruction (POI).*

2. *The rapid pace of technology advancement and the demands of great power competition require highly trained enlisted leaders. Per the references, there is a requirement for an expeditionary communications POI that combines the most critical skillsets of Transmissions, Networking, and Data Systems Marines. The intent of this POI is to train Communications Marines in expeditionary communications skillsets that enable them to operate independently and ensuring that commanders at all levels possess the organic capability to exercise command and control, in any environment, across the full range of military operations, in the smallest formation at the tactical edge.*

3. ***Request Training and Education Command (TECOM), in conjunction with Training Command (TRNGCMD) and the Marine Corps Communications-Electronics School (MCCES) create a new POI or modify existing POIs to support the development of expeditionary communications skillsets as multi-disciplinary independent operators, in support of Force Design, EABO, and similar concepts, ensuring commanders at all levels possess the organic capability to exercise command and control, in any environment, across the full range of military operations, in the smallest formation at the tactical edge.***



DEPARTMENT OF THE NAVY
HEADQUARTERS, UNITED STATES MARINE CORPS
3000 MARINE CORPS PENTAGON
WASHINGTON DC 20350-3000

3000
IC4
OCT 2 8 2021

From: Director, Information Command, Control, Communications, and Computers
To: Commanding General, Training and Education Command
Via: Deputy Commandant for Information

Subj: REQUEST FOR A EXPEDITIONARY COMMUNICATIONS PROGRAM OF INSTRUCTION

Ref: (a) 38th Commandant's Planning Guidance (CPG)
(b) Tentative Manual for Expeditionary Advanced Based Operations (EABO)
(c) NAVMC 3500.96D, 19 Nov 2019

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4. The points of contact for this office are Maj Charlie Sahk, (571) 256-8878, charlie.sahk@usmc.mil, and MSgt Cory Sanchez, (571) 256-8845, cory.sanchez1@usmc.mil.

J. A. MATOS

- *On 29 Aug 2022, CG TRNGCMD approved the MCCES CTB Expeditionary Communications Proof of Concept Course (EC POCC) POI*
- *EC POCC 1-23 was be conducted from 3 Oct 2022 to 23 Nov 2022*

Expeditionary Communications (EC) POCC 2-23 Development POAM

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As of 25 Jan 2023

Project Milestones

- ✓ EC POCC 1-23 3 Oct – 22 Nov 2022
- ✓ EC POC CDD CID Approved by Training Command
- ▪ Draft day-to-day course overview published for comments 7-15 Feb
- ▪ FMF Feedback and Engagement Feb – Mar
- ▪ FOS submitted 28 Feb
- ▪ CTB IPR #1 13-17 Mar
- ▪ Facilities completely established 31 Mar
- ▪ Additional T&Rs submitted 31 Mar
- ▪ CTB IPR #2 8-12 May
- ▪ Moodle Course created with prereq materials 15 May
- ▪ Moodle Course open 15 May
- ▪ Limited internal "dry run" 31 May – 23 Jun
- ▪ MARADMIN released 1 Jun
- ▪ Students' screening checklist due 31 Jul
- ▪ Confirm students 4 Aug
- ▪ FOS gear received 28 Aug
- ▪ CTB Internal Confirmation Brief 4-8 Sep
- ▪ POCC 2-23 11 Sep – 20 Nov 2023

Version 1, 25 Jan 2022