Victory Through Excellence

College of Defence Management

MANAGEMENT DEVELOPMENT PROGRAMME ON OPERATIONS RESEARCH AND SYSTEMS ANALYSIS

27 Jan - 08 Feb 2025

For Military Officers interested in developing

- Ability to relate real life problems as Hard, Dynamic and Soft Systems
- Ability to collect data and world views in order to 'effectively formulate a problem'
- Develop the art of Systems Thinking to identify and solve multi-disciplinary problems using ORSA tools and techniques for decision making
- Understand the concept of Goal/Objective, Criteria and the process of developing Mathematical Models
- Exploitation of these systems techniques in operational planning to overcome the cognitive limitations of the human brain

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Overview

Start Date	-	27 Jan 25
Duration	-	Two Weeks
Delivery	-	Contact Classes, Assignments and Case Studies
Study Type	-	Two Weeks Full Time
Campus	-	College of Defence Management, Secunderabad

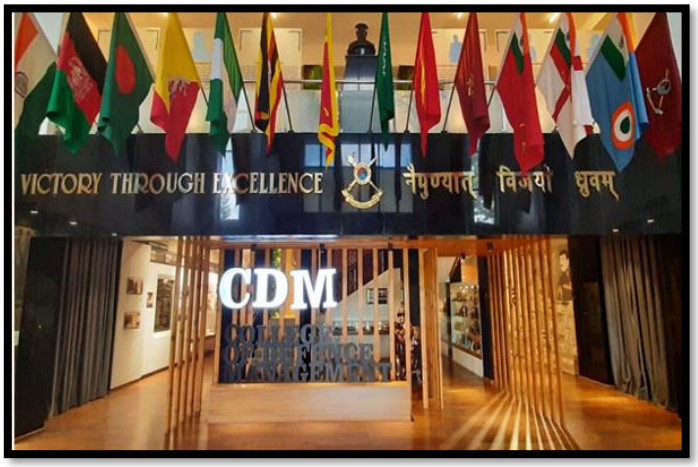
Why this Programme?

The Operations Research programme provides an exposure to the context, issues and methods used to analyse the increasingly complex problems which are found in the defence environment and to support decision making. It exposes the types of analysis and allows practical experience of tools and methods which are used, ranging from analysis through mathematical techniques to models and simulations. The course includes analysis techniques, mathematical analysis methods (including optimisation), and simulation methods.

The Systems Thinking capsule brings together military leaders who are motivated to influence or lead systems. It equips participants with the ability to recognize the systems that they are a part of, its constituents, the purpose that binds them together, and the places to intervene in the system. It develops abilities to work on or design new systems to be sustainable and resilient.

On completion of the course you will:

- Understand methods, techniques and tools for modelling defence problems and systems;
- Access methods to help support defence analysis and decision making
- develop habits to see the whole, not just the parts
- Build individual and organizational capacity to address the systemic problems and challenges in their contexts



Course Format / Methodology

MDP ORSA is a contact facilitated course of two-weeks involving 54 sessions. Participants will be introduced to the concepts through content and facilitation that include handouts, precis, contact classes, case study and discussion in class. In each session, participants are expected to actively participate in conversations, focused inquiry, and complete the assignments. At the end of the programme, participants will submit assignments and case study solutions on the topics learned during the programme. This course will encourage interaction between participants, expect them to build connections, and collaborate with each other.

Schedule and Topics

Topic	Sessions	Topic	Sessions
Introduction to OR	1	Introduction to Systems Thinking & System Terminology	1
Linear Programming	4	System Definitions and Concepts	1
LP Problems	2	Laws of Systems	1
Transportation Model	1	System Dynamics	1
Transhipment Model	2	System Archetypes	2
Assignment Model	2	Leverages	1
Practice Transportation Problem	1	SFD	1
Networks	3	VENSIM Software	2
Networks Problem	1	Soft Systems Thinking	3
TSM	1	Application of Systems Analysis - Case Study	2
MCDM	3	**Total SA**	**15**
AHP Practice Problem	1		
Decision Theory	2		
Decision Tree	2		
Practice Decision Theory and Tree	1		
Queuing Theory	2	Exercise - Assignment Presentation	1
Simulation	2	Assimilation Quiz	1
Decision Rules	1	General	4
Game Theory	2	**Total Gen**	**6**
Total OR	**34**	**Total Sessions**	**55**