

出國報告(出國類別:進修)

2017 年美國陸軍工兵軍官高級班 課程概述及受訓心得報告

服務機關:國防部陸軍司令部

姓名級職:呂紹華上尉

派赴國家:美國

出國期間:106.9.18-107.4.10

報告日期:107.5.10

目 錄

摘要

第一章 受訓重要內容

- 一、課程計畫
- 二、核心課程概述

第二章 受訓心得

- 一、目的
- 二、過程
- 三、心得及建議

第三章 本班次適用性

- 一、是否切合本軍或單位需求
- 二、派訓單位擴訓作為
- 三、本班次受訓時間是否適宜
- 四、爾後赴該校人員注意事項
- 五、其他建議事項

附件

一、本文附件（表）

- 附表一、戰場情報準備
- 附表二、指揮參謀作業程序
- 附表三、聯合建築管理系統概述
- 附表四、工兵部隊支援防禦作戰
- 附表五、國際軍事學員校外參訪課程

二、生活學習照片

摘要

美國工兵軍官高級班(ECCC)為培養連隊長、孕育旅、營級參謀之必備軍事課程，比照國內各兵科正規班。

一期學生約為 70 人，劃分 5 個班，採小班制教學，課程分為預備課程(含營區方向地形介紹、美國文化、政治、歷史背景等)、核心學習課程、工程學、防禦、維穩作戰、維穩作戰、攻擊、遠征作戰、及兵科協同演習等 8 項，由小組教官授課。各小組教官皆歷練完連長乙職，負責教授部隊指揮程序、戰場情報準備、指參程序及工程學等課程。授課方式除原則講解外，多為小組討論或小組報告的方式進行，期藉由彼此腦力激盪的方式使學員親身參與課程，避免淪為師在「台上授課，生在台下雲遊」的窘境。

第一章主要介紹課程內容設計及核心課程的概述，包含戰場情報準備、指揮參謀作業程序、聯合建築管理系統概述及工兵部隊支援防禦作戰等四項。

第三章主要闡述受訓的過程、目的及訓後的心得建議，在心得建議方面主要分為課前準備、專業課程、體能訓練、及其他建議等四個面向作探討。

第一章 受訓重要內容

一、課程計畫（教育計畫）：

項次	課目	備考
1	預備課程 (Prep-course)	
2	核心學習課程 (Mid-Grade Learning Continuum Common Core, MLC)	
3	工程學 (General Engineering, GE1 and GE2)	
4	防禦(Defensive Operation)	
5	維穩作戰 (Stability Operation)	
6	攻擊(Offensive Operation)	機密課程
7	遠征作戰 (Expeditionary Operations, Exped)	
8	兵科協同演習 (Warfighting Exercise)	

二、核心課程概述：

(一) 核心學習課程：

本核心課程為期 8 週，授課教官藉課堂講授、小組討論、專題報告及計畫寫作等方式誘導學員了解領導統御、軍隊符號、部隊指揮程序、戰場情報準備、跨文化溝通技巧、指參作業程序、武裝衝突法等課目，其中**戰場情報準備**及**指參作業程序**為本課程之核心，課程內容概述翔如附表一、二。

(二) 工程學：

本課程為期 2 週，置重點於美軍境外作戰時營區配置的規劃，課程內容包含結合當地地形、水文條件的營地選址、委商興建的工作計畫撰擬及初步的設施配置設計，並結合美軍現有的「聯合建築管理系統(JCMS)」估算工程材料及預算，提高作業效率及計畫精確度。聯合建築管理系統概述翔如附表三。

(三) 防禦：

本課程為期 5 週，旨在藉由實施工兵部隊支援旅、營級防禦作戰之指參作為使學員熟稔其流程，過程中，學員被賦予各自職務，針對負責部份實施資料蒐整與分析、透明圖調製、簡報製作、命令寫作並實施推演，其中，工兵部隊支援旅、營級防禦作戰具體作為翔如附表四。

第二章 受訓心得：

一、目的：

美國工兵軍官高級班目的在於培養一位連級指揮官(Commander)、旅、營級幕僚，磨練其領導統御、工兵專業技能及參謀作業能力。職本次參與美高班課程除提升語言能力、與各國工兵軍官經驗交流外，更可瞭解美軍工兵在戰場上的運用及角色，將所學貢獻予部隊。

二、過程：

受訓期間，於每日 0530-0630 時，由班上遴選出的體育官主持晨間體能訓練，依體育官訂定之訓練套餐實施體能訓練，內容包含 3-5 英里跑步、游泳訓練、重量訓練、循環耐力訓練及球類活動等，期使學員在學習同時亦不忘強化己身體能。另每日 0800-1730 時為正課時間，由小組上尉教官實施授課，授課內容多元，除一般性的原則講解外，亦配合重要戰役回顧、現地戰術、小組討論、報告撰擬、課堂測驗等方式激發學員的學習動機。

三、心得及建議：

(一) 課前準備：

針對預備課程，建議參訓學員預先瞭解各國文化禮節，並熟悉近期國際新聞(美台中關係、亞太地區動態等)，俾利預備課程順遂；此外，可預先準備國家介紹簡報，將本國以正確、正面方式，簡報與他國學員。

正式課程以指揮參謀作業程序、戰場情報準備、作戰計畫及工程學為主，受訓學員若未曾參加我國正規班，應於開訓前研讀國內相關準則(或攜至國外隨課程進展研讀)，避免概念不清、中外詞彙混淆，致返國後，所學與國內現行做法無法銜接。

(二) 專業課程：

正式課程期間，授課節奏緊促，且報告、作業甚繁，課前的預習與課後的複習已是課後的每日行程，加上語言的不熟悉，常讓各國學員備感壓力，萌生敷衍過關的心態，故我國參訓學員應積極進取，秉持認真學習的心態，俾利增進自我，為我國軍所用。

(三) 體能訓練：

每日晨間的體能訓練並非僅是維持結訓前體能測驗過關的基本門檻，參訓學員應藉此機會鍛鍊自我體能，型塑良好體魄。

(四) 其他建議：

1. 參訓學員應於課餘時間，多與他國軍官交流，了解各國工兵部支援與運用，期返國後，貢獻所學。
2. 參訓學員應於訓前稍加了解各國風俗民情，避免無意觸犯他人禁忌招惹事端。

第三章 本班次適用性

一、是否切合本軍或單位需求：

美軍近年依據在伊拉克、阿富汗等國家的實戰經驗持續修編準則，期使幹部在戰場能更加熟稔並活用準則，因此在參訓過程中，學員更能完整瞭解美軍工兵部隊支援作戰能量、方法；此外，藉由教官、學員交流，對美軍工兵單位特性、任務及裝備，皆有進一步了解，此經驗交流同樣可作為本部工兵部隊發展之參照。綜合以上，派訓符合本軍及單位需求。

二、派訓單位擴訓作為：

配合陸軍工兵訓練測考中心翻譯相關準則，並擔任演習傳譯。

三、本班次受訓時間是否適宜：

本次訓期計二十三週，受訓時間適宜。

四、爾後赴該校人員注意事項：

翔如項次四、心得及建議。

五、其他建議事項：

- (一) 參訓期間，參訓學員可多參與校內外活動，如德國體能競賽，為國家、為己身爭取榮耀。
- (二) 兩岸議題於參訓期間時常被提及、討論，建議參訓學員持續瞭解國際動態，更避免因個人認知差異或語言隔閡無法清楚表達意見，造成誤解。

附件

一、本文附件（表）

附表一、戰場情報準備(Intelligence Preparation of the Battlefield, IPB)

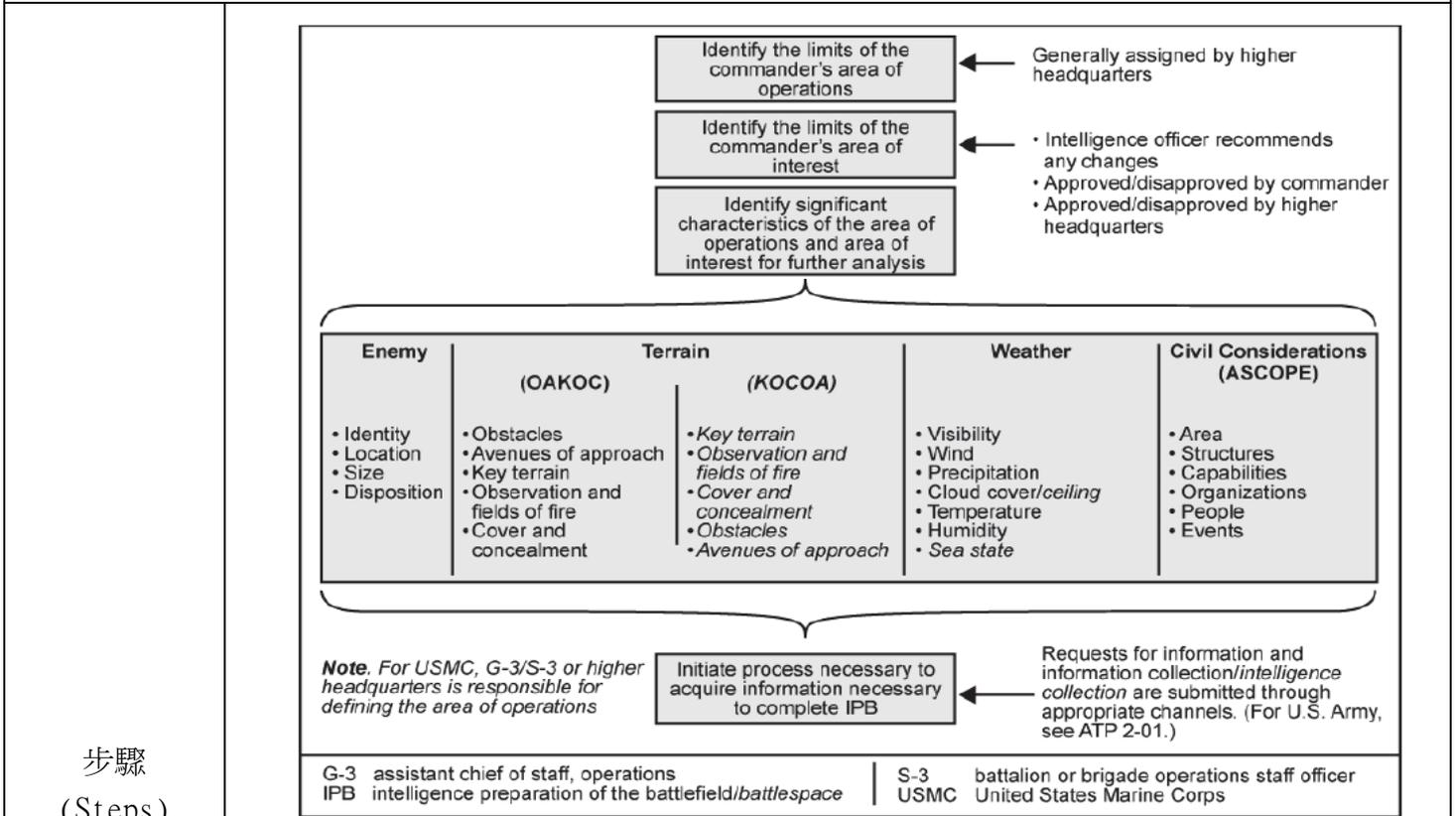


Figure 3-1. Sub-steps of step 1 of the IPB process

步驟
(Steps)

- | | |
|---|--|
| 1. 界定戰場空間
(Define the Operational Environment) | 1. 界定作戰範圍(Identify the limits of the commander's AO) |
| | 2. 界定利害區(Identify the limits of the commander's AI) |
| | 3. 識別作戰地區環境重要特性 |
- 定位(Orient: N/S/E/W)
 - 區塊式(Box: boarder Northing & Easting gridlines)
 - 描繪(Trace: physical features)
 - 熟悉之地貌(Familiarize: well-known physical features)
 - 空中密接支援(CAS)
 - 砲兵火力(Artillery)
 - 陸航火力(Rotary Wing)
 - 預備隊及增援兵力(Reserves and Reinforce)

4. 識別情報間隙及將其轉換至作戰需求

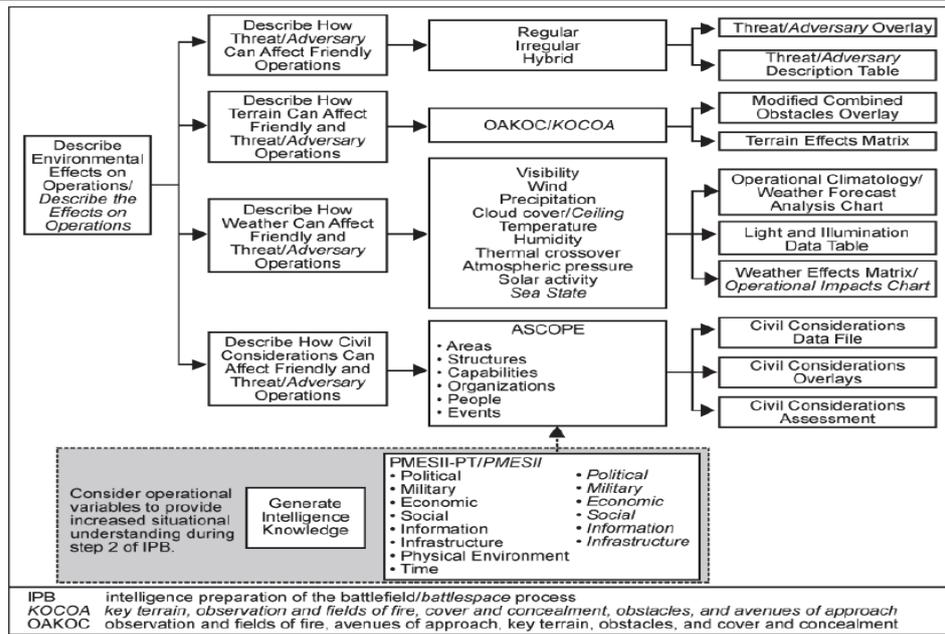


Figure 4-1. Step 2 of the IPB process

2. 作戰地區分析
 (Describe Environment Effects on Operational)

1. 描述敵對我作戰之影響(Describe how the threat can affect friendly ops)
2. 描述地形對敵、我作戰之影響(Describe how terrain can affect friendly and threat ops)
 #地形五大要素(OAKOC)
 - 障礙物(Obstacles)
 - 接近路線(Avenue of Approach, AA)
 - 地形要點(Key Terrain)
 - 觀測與射界(Observation and Field of Fires)
 - 隱蔽與掩蔽(Cover and Concealment)
 #修正後混合障礙透明圖(MCOO)，須包含：
 - 接近路線(AAs)
 - 機動走廊(Mobility corridors)
 - 天然及人為障礙物(Natural and manmade obstacles)
 - 地形要點(Key Terrain)
3. 描述天候對敵、我作戰之影響(Describe how weather can affect friendly and threat ops)
 #矩陣分析(Matrix)
 - 能見度(Visibility)
 - 風向及強度(Wind)
 - 降雨(Precipitation)
 - 雲蔽(Cloud cover)
 - 氣溫(Temperature)、濕度(Humidity)

• 其他：氣壓(Atmospheric)、海況(Sea state)等

4.描述民事考量對敵、我作戰之影響(Describe how civil consideration can affect friendly and threat ops)

#矩陣分析(Matrix)：PMESII & ASCOPE

	AREAS	STRUCTURES	CAPABILITIES	ORGANIZATIONS	PEOPLE	EVENTS
POLITICAL	<ul style="list-style-type: none"> Enclaves Municipalities Provinces Districts Political districts Voting National boundaries Party affiliation areas Shadow government influence areas 	<ul style="list-style-type: none"> Courts (court houses, mobile courts) Government centers Provincial/district centers Meeting halls Polling sites 	<ul style="list-style-type: none"> Public administration: <ul style="list-style-type: none"> Civil authority, practices, and rights Political system Political stability Political traditions Standards and effectiveness Executive: <ul style="list-style-type: none"> Administration Policies Powers Organization Legislative: <ul style="list-style-type: none"> Administration Policies Powers Organization Judicial/legal: <ul style="list-style-type: none"> Administration Capacity Policies Civil and criminal codes Powers Organization Law enforcement Dispute resolution, grievances Local leadership Degrees of legitimacy 	<ul style="list-style-type: none"> Major political parties: <ul style="list-style-type: none"> Formal Nongovernment organizations Host government Insurgent group affiliations Court system Covert political power Partnerships: foreign 	<ul style="list-style-type: none"> United Nations representatives Political leaders Governors Councils Elders Community leaders Paramilitary members Judges Prosecutors 	<ul style="list-style-type: none"> Elections Council meetings Speeches (significant) Security and military training sessions Significant trials Distribution of power Political motivation Treaties Will
MILITARY	<ul style="list-style-type: none"> Area of influence Area of interest Area of operation Safe havens or sanctuary Multinational/local nation bases Historic ambush/improvised explosive device sites/insurgent bases 	<ul style="list-style-type: none"> Bases Headquarters (police) Known leader houses/businesses 	<ul style="list-style-type: none"> Doctrine Organization Training Intelligence Leadership Personnel manpower Facilities History Nature of civil-military relationships Resource constraints Local security forces Quick reaction force Insurgent strength Enemy recruiting 	<ul style="list-style-type: none"> Host-nation forces present Insurgent forces present and networks Multinational forces Paramilitary organizations Terrorists Multinational forces present Fraternal organizations Civic organizations 	<ul style="list-style-type: none"> Key leaders Multinational, insurgent, military 	<ul style="list-style-type: none"> Combat Historical Noncombat Kinetic events Unit reliefs Loss of leadership

	AREAS	STRUCTURES	CAPABILITIES	ORGANIZATIONS	PEOPLE	EVENTS
ECONOMIC	<ul style="list-style-type: none"> Commercial Fishery Forestry Industrial Livestock dealers Markets Mining Movement of goods/services Smuggling routes Trade routes Black market areas 	<ul style="list-style-type: none"> Banking Fuel: <ul style="list-style-type: none"> Distribution Refining Source Industrial plants Manufacturing Warehousing Markets Silos, granaries, warehouses Farms/ranches Auto repair shops 	<ul style="list-style-type: none"> Fiscal: <ul style="list-style-type: none"> Access to banks Currency Monetary policy Ability to withstand drought Black market Energy Imports/exports External support/aid Food Distributing Marketing Production Processing Rationing Security Storing Transporting Inflation Market prices Raw materials Tariffs 	<ul style="list-style-type: none"> Banks Business organizations Cooperatives Economic nongovernment organizations Guilds Labor unions Major illicit industries Large landholders Volunteer groups 	<ul style="list-style-type: none"> Bankers Employers/employees Labor occupations Consumption patterns Unemployment rate Underemployment rate (if this exists) Merchants Job lines Landholders Money lenders Black marketers Gang members Smuggling chain 	<ul style="list-style-type: none"> Drought, harvest, yield, domestic animals, livestock (cattle, sheep) and market cycles Labor migration events Market days Payday Business openings Loss of business
SOCIAL	<ul style="list-style-type: none"> Refugee camps Enclaves: <ul style="list-style-type: none"> Ethnic Religious Social Tribal <ul style="list-style-type: none"> Families or clans Neighborhoods Boundaries of influence School districts Parks Traditional picnic areas Markets Outdoor religious sites 	<ul style="list-style-type: none"> Clubs Jails Historical buildings/landmarks Libraries Religious Schools/universities Stadiums Cemeteries Bars and tea shops Social gathering places (meeting places) Restaurants 	<ul style="list-style-type: none"> Medical: <ul style="list-style-type: none"> Traditional Modern Social networks Academic Strength of tribal/village Traditional structures Judicial 	<ul style="list-style-type: none"> Clan Community councils and organizations School councils Criminal organizations Familial Patriotic/service organizations Religious groups Tribes 	<ul style="list-style-type: none"> Community leaders, councils and their members Educational Ethnicity/racial: <ul style="list-style-type: none"> Dominant group Percentages Role in conflict Key figures: <ul style="list-style-type: none"> Criminals Entertainment Religious leaders Chiefs/elders Language/dialects Vulnerable populations Displaced persons Sports Influential families Migration patterns Culture: <ul style="list-style-type: none"> Artifacts Behaviors Customs Shared beliefs/values 	<ul style="list-style-type: none"> Celebrations Civil disturbances National holidays Religious holidays and observance days Food line Weddings Birthdays Funerals Sports events Market days Family gatherings History: Major wars/conflicts
INFORMATION	<ul style="list-style-type: none"> Broadcast coverage area (newspaper, radio, television) Word of mouth Gathering points Graffiti Posters 	<ul style="list-style-type: none"> Communications: <ul style="list-style-type: none"> Lines Towers (cell, radio, television) Internet service: <ul style="list-style-type: none"> Satellite Cable Cellular phone Postal service Print shops Telephone TV stations Radio stations 	<ul style="list-style-type: none"> Availability of electronic media Indigenous communications networks Internet access Intelligence services Printed material: <ul style="list-style-type: none"> Journals Newspapers Flyers Propaganda mechanisms Radio Television Social media Literacy rate Word of mouth 	<ul style="list-style-type: none"> Media groups and news organizations Religious groups Insurgent inform and influence activities groups Government groups Public relations and advertising agencies 	<ul style="list-style-type: none"> Decisionmakers Media personalities Media groups and news organizations Community leaders Elders Heads of families 	<ul style="list-style-type: none"> Disruption of services Censorship Religious observance days Publishing dates Inform and influence activities campaigns Project openings
INFRASTRUCTURE	<ul style="list-style-type: none"> Commercial Industrial Residential Rural Urban Road systems Power grids Irrigation networks Water tables 	<ul style="list-style-type: none"> Emergency shelters Energy: <ul style="list-style-type: none"> Distribution system Electrical lines Natural gas Power plants Medical: <ul style="list-style-type: none"> Hospitals Veterinary Public buildings Transportation: <ul style="list-style-type: none"> Airfields Bridges Bus stations Ports and harbors Railroads Roadways Subways Waste distribution, storage, and treatment: <ul style="list-style-type: none"> Dams Sewage Solid Construction sites 	<ul style="list-style-type: none"> Construction Clean water Communications systems Law enforcement Fire fighting: <ul style="list-style-type: none"> Basic Intensive Urgent Sanitation Maintain roads, dams, irrigation, sewage systems Environmental management 	<ul style="list-style-type: none"> Construction companies Government Contract 	<ul style="list-style-type: none"> Builders Road contractors Local development councils 	<ul style="list-style-type: none"> Scheduled maintenance (road/bridge construction) Natural/manmade disasters Well digging Community center construction School construction

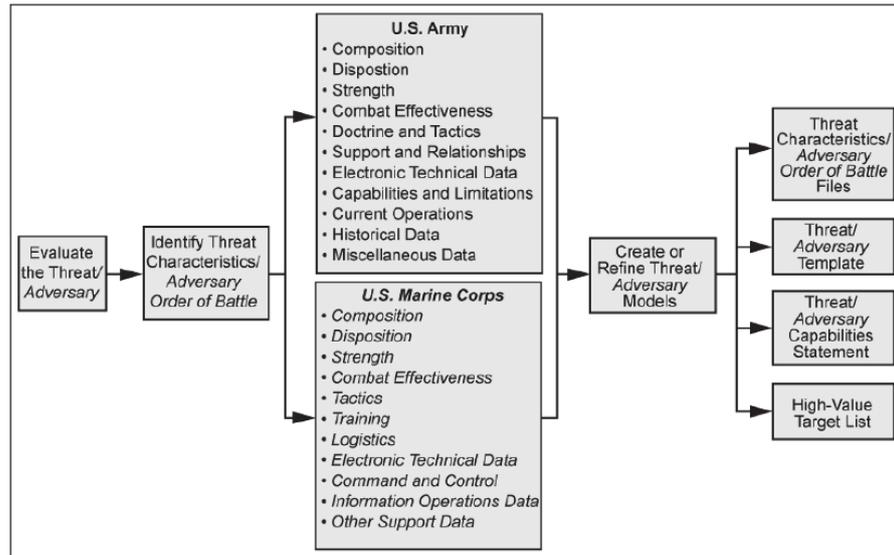


Figure 5-1. Evaluate the threat/adversary

3. 敵軍威脅評估
(Evaluate the Threat)

1. 識別敵軍威脅(Identify threat characteristics order of battle)
 - 敵編成(Composition, What?)
 - 敵佈署(Disposition, Where?)
 - 當前戰力(Strength, numbers and percentage?)
 - 以六大作戰效能分析敵軍能量(Capabilities, WFFs?)
2. 建立敵軍威脅模式(Create or refine threat models)

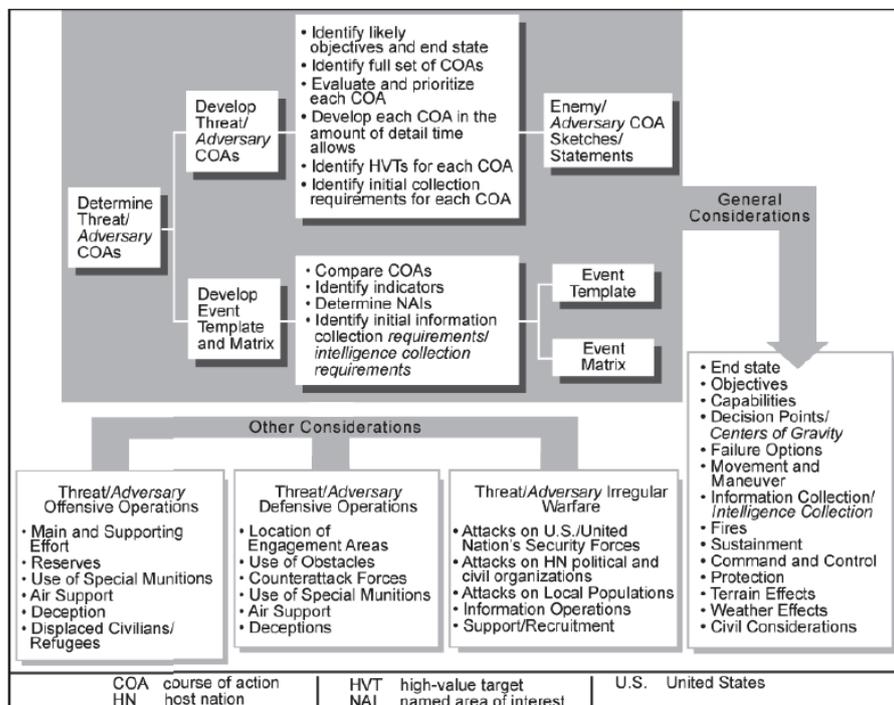


Figure 6-1. Determine threat/adversary COAs

4. 敵可能行動研判
(Determine Threat)

1. 列舉敵可能行動(Develop threat courses of action)
 - 列舉敵目標及所望戰果(OBJs and end state)

	COAs)	<ul style="list-style-type: none"> • 列舉所有敵可能行動方案(Full set of COAs) <ul style="list-style-type: none"> -以作戰效能分析敵、我相對戰力 -產生行動選項：必要任務、目的、決勝點、主要及次要作戰等 -兵力佈署 -初步作戰構想 -各部隊任務 • 評估所有敵可能行動之優先性、可能性(Priority) • 列舉敵高價值目標(HVTs) • 列舉敵可能行動之需求(Initial requirements)
<p style="text-align: center;">小結 (Conclusion)</p>	<p>戰場情報準備為一系統化、連續性的作業流程，以分析天氣、地形與敵情為基礎，進而探討作戰環境特性、研判敵可能行動，作為指揮官下達決心之參考。</p> <p>美方戰場情報準備內容多與我國準則內容相同，惟運用時，美軍因境外作戰甚繁，故除基本的地形五大要素的分析外，特重民事考量(如該地的組織結合政治，由作戰區內政黨團體、非營利組織、議會系統、國際友邦團等)，這部分是我國正規班較少著墨的部分，卻也是戰場情報準備不可輕忽的一部份，他日我國若重返聯合國，屆時維和行動的參與勢在必行，故地主國的民事考量將成為影響作戰成敗之重要因素。</p>	2.調製敵行動方案之透明圖及分析矩陣(Develop the event template and matrix)
	<p>參考準則：</p> <p>ATP 2-10.3 Intelligence Preparation of the Battlefield, 2014</p> <p>FM 6-0 Commander and Staff Organization and Operations, 2014</p>	

附表二、指揮參謀作業程序(Military Decisionmaking Process, MDMP)

概要 (Outline)	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="background-color: #cccccc;">Key inputs</th> <th style="background-color: #cccccc;">Steps</th> <th style="background-color: #cccccc;">Key outputs</th> </tr> </thead> <tbody> <tr> <td> <ul style="list-style-type: none"> Higher headquarters' plan or order or a new mission anticipated by the commander </td> <td style="text-align: center;"> Step 1: Receipt of Mission </td> <td> <ul style="list-style-type: none"> Commander's initial guidance Initial allocation of time </td> </tr> <tr> <td colspan="3" style="text-align: center;">Warning order</td> </tr> <tr> <td> <ul style="list-style-type: none"> Commander's initial guidance Higher headquarters' plan or order Higher headquarters' knowledge and intelligence products Knowledge products from other organizations Army design methodology products </td> <td style="text-align: center;"> Step 2: Mission Analysis </td> <td> <ul style="list-style-type: none"> Problem statement Mission statement Initial commander's intent Initial planning guidance Initial CCIRs and EEFI Updated IPB and running estimates Assumptions Evaluation criteria for COAs </td> </tr> <tr> <td colspan="3" style="text-align: center;">Warning order</td> </tr> <tr> <td> <ul style="list-style-type: none"> Mission statement Initial commander's intent, planning guidance, CCIRs, and EEFI Updated IPB and running estimates Assumptions Evaluation criteria for COAs </td> <td style="text-align: center;"> Step 3: Course of Action (COA) Development </td> <td> <ul style="list-style-type: none"> COA statements and sketches <ul style="list-style-type: none"> Tentative task organization Broad concept of operations Revised planning guidance Updated assumptions </td> </tr> <tr> <td> <ul style="list-style-type: none"> Updated running estimates Revised planning guidance COA statements and sketches Updated assumptions </td> <td style="text-align: center;"> Step 4: COA Analysis (War Game) </td> <td> <ul style="list-style-type: none"> Refined COAs Potential decision points War-game results Initial assessment measures Updated assumptions </td> </tr> <tr> <td> <ul style="list-style-type: none"> Updated running estimates Refined COAs Evaluation criteria War-game results Updated assumptions </td> <td style="text-align: center;"> Step 5: COA Comparison </td> <td> <ul style="list-style-type: none"> Evaluated COAs Recommended COAs Updated running estimates Updated assumptions </td> </tr> <tr> <td> <ul style="list-style-type: none"> Updated running estimates Evaluated COAs Recommended COAs Updated assumptions </td> <td style="text-align: center;"> Step 6: COA Approval </td> <td> <ul style="list-style-type: none"> Commander approved COA and any modifications Refined commander's intent, CCIRs, and EEFI Updated assumptions </td> </tr> <tr> <td colspan="3" style="text-align: center;">Warning order</td> </tr> <tr> <td> <ul style="list-style-type: none"> Commander approved COA and any modifications Refined commander's intent, CCIRs, and EEFI Updated assumptions </td> <td style="text-align: center;"> Step 7: Orders Production, Dissemination, and Transition </td> <td> <ul style="list-style-type: none"> Approved operation plan or order Subordinates understand the plan or order </td> </tr> <tr> <td colspan="3"> <table style="width: 100%; border: none;"> <tr> <td style="border: none;">CCIR</td> <td style="border: none;">commander's critical information requirement</td> <td style="border: none;">EEFI</td> <td style="border: none;">essential element of friendly information</td> </tr> <tr> <td style="border: none;">COA</td> <td style="border: none;">course of action</td> <td style="border: none;">IPB</td> <td style="border: none;">intelligence preparation of the battlefield</td> </tr> </table> </td> </tr> </tbody> </table>			Key inputs	Steps	Key outputs	<ul style="list-style-type: none"> Higher headquarters' plan or order or a new mission anticipated by the commander 	Step 1: Receipt of Mission	<ul style="list-style-type: none"> Commander's initial guidance Initial allocation of time 	Warning order			<ul style="list-style-type: none"> Commander's initial guidance Higher headquarters' plan or order Higher headquarters' knowledge and intelligence products Knowledge products from other organizations Army design methodology products 	Step 2: Mission Analysis	<ul style="list-style-type: none"> Problem statement Mission statement Initial commander's intent Initial planning guidance Initial CCIRs and EEFI Updated IPB and running estimates Assumptions Evaluation criteria for COAs 	Warning order			<ul style="list-style-type: none"> Mission statement Initial commander's intent, planning guidance, CCIRs, and EEFI Updated IPB and running estimates Assumptions Evaluation criteria for COAs 	Step 3: Course of Action (COA) Development	<ul style="list-style-type: none"> COA statements and sketches <ul style="list-style-type: none"> Tentative task organization Broad concept of operations Revised planning guidance Updated assumptions 	<ul style="list-style-type: none"> Updated running estimates Revised planning guidance COA statements and sketches Updated assumptions 	Step 4: COA Analysis (War Game)	<ul style="list-style-type: none"> Refined COAs Potential decision points War-game results Initial assessment measures Updated assumptions 	<ul style="list-style-type: none"> Updated running estimates Refined COAs Evaluation criteria War-game results Updated assumptions 	Step 5: COA Comparison	<ul style="list-style-type: none"> Evaluated COAs Recommended COAs Updated running estimates Updated assumptions 	<ul style="list-style-type: none"> Updated running estimates Evaluated COAs Recommended COAs Updated assumptions 	Step 6: COA Approval	<ul style="list-style-type: none"> Commander approved COA and any modifications Refined commander's intent, CCIRs, and EEFI Updated assumptions 	Warning order			<ul style="list-style-type: none"> Commander approved COA and any modifications Refined commander's intent, CCIRs, and EEFI Updated assumptions 	Step 7: Orders Production, Dissemination, and Transition	<ul style="list-style-type: none"> Approved operation plan or order Subordinates understand the plan or order 	<table style="width: 100%; border: none;"> <tr> <td style="border: none;">CCIR</td> <td style="border: none;">commander's critical information requirement</td> <td style="border: none;">EEFI</td> <td style="border: none;">essential element of friendly information</td> </tr> <tr> <td style="border: none;">COA</td> <td style="border: none;">course of action</td> <td style="border: none;">IPB</td> <td style="border: none;">intelligence preparation of the battlefield</td> </tr> </table>			CCIR	commander's critical information requirement	EEFI	essential element of friendly information	COA	course of action	IPB	intelligence preparation of the battlefield
	Key inputs	Steps	Key outputs																																												
<ul style="list-style-type: none"> Higher headquarters' plan or order or a new mission anticipated by the commander 	Step 1: Receipt of Mission	<ul style="list-style-type: none"> Commander's initial guidance Initial allocation of time 																																													
Warning order																																															
<ul style="list-style-type: none"> Commander's initial guidance Higher headquarters' plan or order Higher headquarters' knowledge and intelligence products Knowledge products from other organizations Army design methodology products 	Step 2: Mission Analysis	<ul style="list-style-type: none"> Problem statement Mission statement Initial commander's intent Initial planning guidance Initial CCIRs and EEFI Updated IPB and running estimates Assumptions Evaluation criteria for COAs 																																													
Warning order																																															
<ul style="list-style-type: none"> Mission statement Initial commander's intent, planning guidance, CCIRs, and EEFI Updated IPB and running estimates Assumptions Evaluation criteria for COAs 	Step 3: Course of Action (COA) Development	<ul style="list-style-type: none"> COA statements and sketches <ul style="list-style-type: none"> Tentative task organization Broad concept of operations Revised planning guidance Updated assumptions 																																													
<ul style="list-style-type: none"> Updated running estimates Revised planning guidance COA statements and sketches Updated assumptions 	Step 4: COA Analysis (War Game)	<ul style="list-style-type: none"> Refined COAs Potential decision points War-game results Initial assessment measures Updated assumptions 																																													
<ul style="list-style-type: none"> Updated running estimates Refined COAs Evaluation criteria War-game results Updated assumptions 	Step 5: COA Comparison	<ul style="list-style-type: none"> Evaluated COAs Recommended COAs Updated running estimates Updated assumptions 																																													
<ul style="list-style-type: none"> Updated running estimates Evaluated COAs Recommended COAs Updated assumptions 	Step 6: COA Approval	<ul style="list-style-type: none"> Commander approved COA and any modifications Refined commander's intent, CCIRs, and EEFI Updated assumptions 																																													
Warning order																																															
<ul style="list-style-type: none"> Commander approved COA and any modifications Refined commander's intent, CCIRs, and EEFI Updated assumptions 	Step 7: Orders Production, Dissemination, and Transition	<ul style="list-style-type: none"> Approved operation plan or order Subordinates understand the plan or order 																																													
<table style="width: 100%; border: none;"> <tr> <td style="border: none;">CCIR</td> <td style="border: none;">commander's critical information requirement</td> <td style="border: none;">EEFI</td> <td style="border: none;">essential element of friendly information</td> </tr> <tr> <td style="border: none;">COA</td> <td style="border: none;">course of action</td> <td style="border: none;">IPB</td> <td style="border: none;">intelligence preparation of the battlefield</td> </tr> </table>			CCIR	commander's critical information requirement	EEFI	essential element of friendly information	COA	course of action	IPB	intelligence preparation of the battlefield																																					
CCIR	commander's critical information requirement	EEFI	essential element of friendly information																																												
COA	course of action	IPB	intelligence preparation of the battlefield																																												

Figure 9-1. The seven steps of the military decisionmaking process

步驟 (Steps)	1. 受領任務 (Receipt of Mission)	1. 通知各幕僚及相關人員(Alert the staff and other key participants)
		2. 準備作業工具(Gather the tools)
		3. 評估當前狀況(Update running estimates)
		4. 分配可用資源(Conduct initial assessment)
		5. 初步指揮官作業指導(Issue the CDR's initial guidance)
		6. #第一道預備命令(Issue the initial warning order)

2. 任務分析 (Mission Analysis)	1. 分析上級計畫、命令(Analyze the higher HQ' s plan or order)																					
	2. 實施初步戰場情報準備作業(Perform initial IPB)																					
	3. 確認特定、推斷及必要任務(Determine specified, implied, and essential tasks)																					
	4. 檢視可用資源及短缺部份(Review available assets and identify resource shortfalls)																					
	5. 確認限制因素(Determine constraints)																					
	6. 確認必要事實及假定事項(Identify critical facts and develop assumptions)																					
	7. 實施風險管理(Begin risk management)																					
	8. 研擬指揮官情報需求及友軍情報蒐集要項(Develop initial CCIRs and EEFI s)																					
	9. 研擬初步情蒐計畫(Develop initial information collection plan)																					
	10. 規劃可用時間(Update plan for the use of available time)																					
	11. 研擬初步主題及訊息(Develop initial themes and messages)																					
	12. 研擬當前問題描述(Develop a proposed problem statement)																					
	13. 研擬(Develop a proposed mission statement)																					
	14. #實施任務分析簡報(Present the mission analysis briefing)																					
	15. 產生指揮官初步作戰構想(Develop and issue initial CDR' s intent)																					
	16. 實施初步參謀作業指導(Develop and issue initial planning guidance)																					
	17. 研擬行動方案評估標準(Develop COA evaluation criteria)																					
	18. #第二道預備命令(Issue a warning order)																					
3. 研擬行動方案 (COA Development)	1. 分析敵、我相對戰力(Assess relative combat power)																					
	2. 產生行動選項(Generate options)																					
	3. 兵力部署(Array forces)																					
	Table 9-2. Historical minimum planning ratios																					
	<table border="1"> <thead> <tr> <th><i>Friendly Mission</i></th> <th><i>Position</i></th> <th><i>Friendly : Enemy</i></th> </tr> </thead> <tbody> <tr> <td>Delay</td> <td></td> <td>1:6</td> </tr> <tr> <td>Defend</td> <td>Prepared or fortified</td> <td>1:3</td> </tr> <tr> <td>Defend</td> <td>Hasty</td> <td>1:2.5</td> </tr> <tr> <td>Attack</td> <td>Prepared or fortified</td> <td>3:1</td> </tr> <tr> <td>Attack</td> <td>Hasty</td> <td>2.5:1</td> </tr> <tr> <td>Counterattack</td> <td>Flank</td> <td>1:1</td> </tr> </tbody> </table>	<i>Friendly Mission</i>	<i>Position</i>	<i>Friendly : Enemy</i>	Delay		1:6	Defend	Prepared or fortified	1:3	Defend	Hasty	1:2.5	Attack	Prepared or fortified	3:1	Attack	Hasty	2.5:1	Counterattack	Flank	1:1
	<i>Friendly Mission</i>	<i>Position</i>	<i>Friendly : Enemy</i>																			
	Delay		1:6																			
	Defend	Prepared or fortified	1:3																			
	Defend	Hasty	1:2.5																			
Attack	Prepared or fortified	3:1																				
Attack	Hasty	2.5:1																				
Counterattack	Flank	1:1																				
4. 研擬作戰構想(Development a board concept)																						
5. 各部隊任務(Assign HQs)																						
6. 研擬行動方案文字敘述及圖解(Develop COA statements and sketches)																						
7. #實施行動方案簡報(Conduct COA briefing)																						
8. 修正行動方案以利接續分析(Select or modify COAs for continued analysis)																						
4. 行動方案分析及 兵棋推演(COA Analysis and	1. 準備作業工具(Gather the tools)																					
	2. 臚列所有友軍單位(List all friendly forces)																					
	3. 列舉假定事項(List assumptions)																					

	War-gaming)	4. 列舉已知重大事件及決心點(List known critical events and decision points)
		5. 選定兵棋推演方式(Select the war-gaming method) <ul style="list-style-type: none"> • 區塊式(Box) • 條狀式(Belt) • 條狀縱深式(Avenue in depth)
		6. 選定記錄及顯示兵推結果之方法(Select a technique to record and display results)
		7. 實施兵棋推演及結果評估(War-game the operation and assess the results)
		8. #實施兵棋推演簡報(Conduct a war-game briefing)
5. 行動方案比較 (COA Comparison)		1. 實施行動方案利弊分析(Conduct advantages and disadvantages analysis)
		2. 行動方案比較(Compare COAs)
		3. #實施行動方案決心簡報(Conduct a COA decision briefing)
6. 核准行動方案 (COA Approval)		1. 指揮官核准行動方案(CDR approves a COA)
7. 完成計畫及命令 (Orders production, dissemination, and Transition)		1. 完成及公布命令(Produce and disseminate orders)
		2. 從計畫階段轉換至作戰階段(Transition from planning to operations)
小結 (Conclusion)	<p>軍事指揮參謀作業程序為一反覆性瞭解當前狀況、任務，並發展行動方案及作戰命令之過程，協助領導者應用邏輯性及專業性的知識瞭解當前狀況，及解決問題之辦法。</p> <p>課程中，由小組教官分配各學員職務，輪流擔任副主官/執行官(Executive officer)、人事官(S1)、情報官(S2)、作戰官(S3)及助理作戰官(Assistant)、後勤官(S4)、通信官(S6)、工兵官(Engineer officer)、火協官(FSO)等，學員須於推演過程中，針對負責部份實施資料蒐整、分析、繪製透明圖、簡報製作及命令寫作，此過程能使各學員充分瞭解各兵種於推演階段所扮演角色之任務及特性，以利爾協同作戰時能互相合作。</p> <p>小組實施指揮參謀作業程序推演過程中，除透明圖調製外，其餘皆於電子化作業，包含簡報製作及命令寫作等；於期末兵科協同推演，全程皆為電子化作業，使用 CPOF 及 DRTX 系統及投影片輔助，可同步作業，減少資源浪費及縮短作業時間。</p>	
	<p>參考準則： FM 6-0 Commander and Staff Organization and Operations, 2014</p>	

附表三、聯合建築管理系統概述(JCMS)

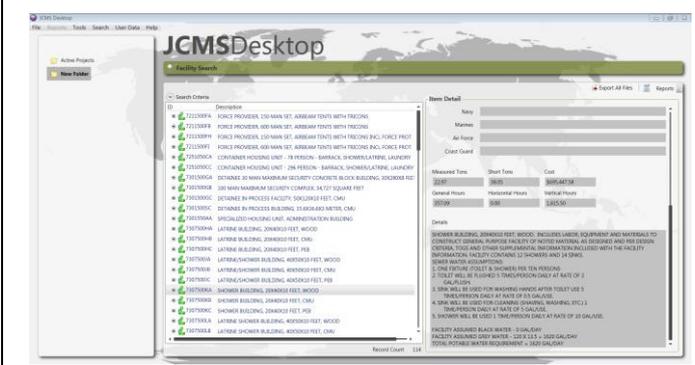
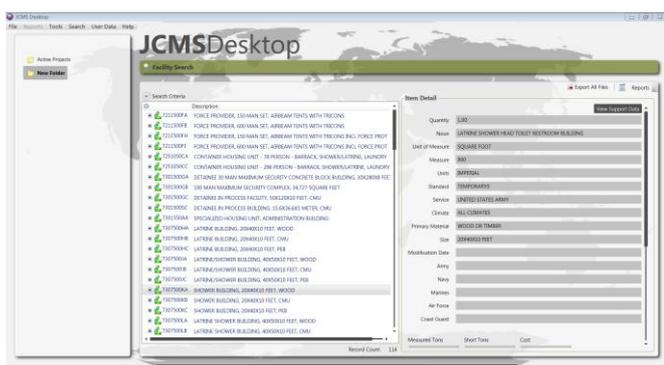
簡介

陸軍設施元件系統 Army Facilities Component System(AFCS) Program，為一組織，負責建築相關數據，提供建築設計、原料及提供技術，其數據元件由大至小區分為：

1. 超級元件(Super Component)：如 5000 人以上之營區、長期使用標準等
2. 元件(Component)：如 750 人之生活區、部份營區規劃等
3. 設施(Facility)：如一般大樓、建築
4. 建築活動(Construction Activity)：如外牆構築、窗戶、磁磚等
5. 資源(Resource)：如建築施工人員、水泥、磚石等

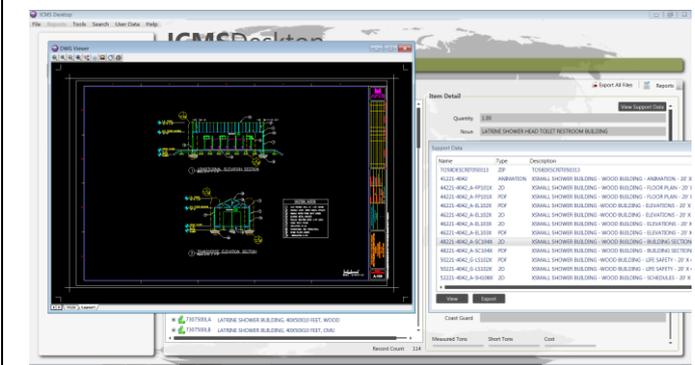
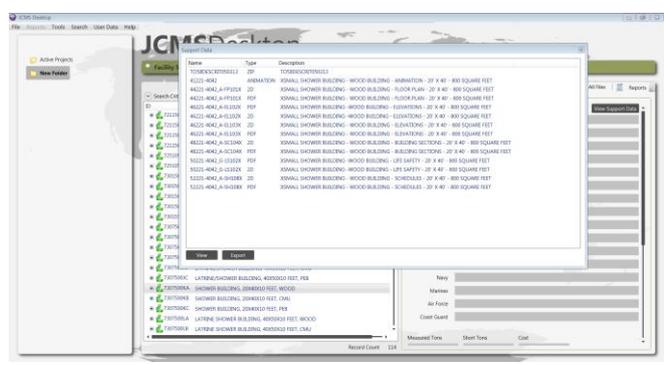
聯合建築管理系統(JCMS)則為一美軍最新的工具軟體，於 2015 年取代原先地區建築管理系統 Theater Construction Management System(TCMS)，能將 AFCS 內數據輸入並轉化為所需項目。由系統內可搜尋各項營區(野戰)建設所需設施及設備，並包含該項目之番號、尺寸、費用、用途、建築人時、建築標準、藍圖等詳細描述。參訓學員於工程學使用此 JCMS 系統，須配合軍證晶片卡使用，並將相關設計結果，輸入微軟專案管理軟體(MS Project)，為任務分配資源、時間(甘特圖製作)並管理預算及工作量，進而完成營區設計規劃專案。

操作畫面



搜尋元件：輸入關鍵字即可搜尋需興建之建物；以長期使用之木造盥洗大樓，20*40*10 英尺為例。

其詳細描述包含所需材料、花費、建築工時等。

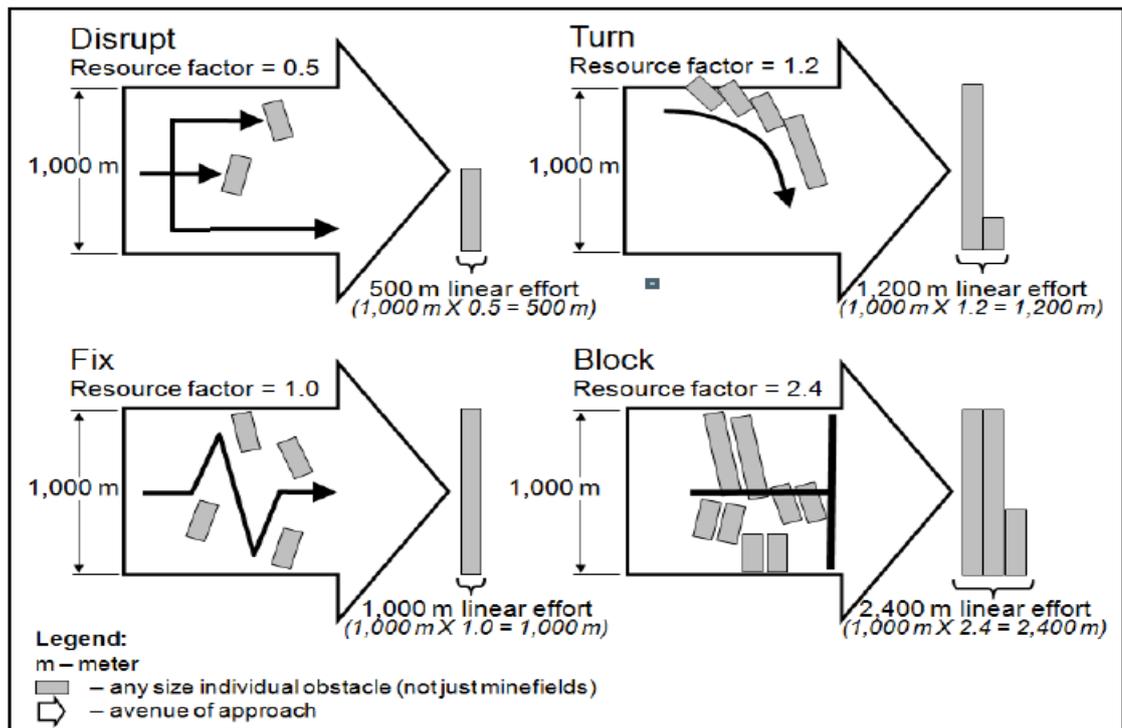


亦包含該建物正、立面圖、剖面圖等

附表四、防禦 (Defensive Operation)	
目的	工兵部隊支援防禦作戰為同時應用戰鬥工兵(Combat Engineering)、一般工程(General Engineering)及地理工程(Geospatial Engineering)之能力，同步應用作戰效能實施縱深作戰；一般而言，戰鬥工兵為首要支援戰鬥部隊之能量，惟整合以上三者可達最大支援效能。戰鬥工兵支援防禦作戰，任務為整合障礙物設置，以促進友軍機動及遲滯敵之行動(Counter-mobility)；而在防禦作戰中，以提高戰場生存率為主(Survivability)，因此另包含構築防禦工事，依天然地形起伏整修成防護掩體，以保護易受攻擊之武器、指管及補給設施，在其正面及側翼防護敵軍火力，避免成為敵軍砲火攻擊之重要防護目標。惟戰時視指揮官決心決定重要性順序，及爾後之資源分配。而在作戰階段，一般工程部份，將配合作戰效能內防護力(Protection)持續構築及準備保護性設施。
作戰特性	機動(Maneuver)、縱深作戰(Operations in Depth)、準備(Preparation)、安全(Security)、擾亂(Disruption)、集中戰力(Mass and Concentration)、彈性(Flexibility)
支援方式	<ol style="list-style-type: none"> 1.機動(Mobility)：削弱或排除既有障礙物，以利我軍機動，如：架橋跨越河川、爆破移除巨石、使用工兵機械排雷開設通路等 2.反機動(Counter-mobility)：主要運用於防禦作戰，以阻絕系統(散撒佈雷系統)為主，結合各項阻絕，並結合兵、火力設置，降低敵軍機動 3.戰場生存力(Survivability)：主要藉工兵機械構築防禦工事，結合天然地形，針對重要目標正面及側翼實施防護；美軍工兵部隊以 D7 推土機及 ACE 戰鬥工兵車為主，構築可遮蓋砲塔式(TDP)及可遮蓋車身式(HDP)掩體掩體
障礙物區分	<p>現有障礙物：</p> <ol style="list-style-type: none"> 1.天然障礙物：河川、高山、森林、沙漠等 2.人為障礙物：城鎮、醫院等 <p>加強障礙物：</p> <ol style="list-style-type: none"> 1.戰術型障礙物：功能為反機動(Counter-mobility)，常設置於接戰地區內或周邊 <ul style="list-style-type: none"> ● 指示性阻絕(Directed)：上級指示須設置之阻絕，功能為遲滯、轉向、阻止敵軍機動，美軍以散撒佈雷系統之工兵火山佈雷系統(Volcano)為主，配合各型式刺絲網及壕溝設置 ● 狀況性阻絕(Situational)：已完成阻絕計畫及作業，當敵軍之行動符合設定之觸發事件(Trigger)，方實施狀況性阻絕設置作業，須留意此觸發事件為事件導向，而非時間導向；通常此時敵軍已近我軍陣地，作業時間有限，此狀況性阻絕功能為擾亂敵軍，美軍以砲兵散撒佈雷系統(ADAM/RAAMS)為主 ● 預備性阻絕(Reserve)：已完成雷區計畫及作業，須於指揮官指示下設置，當友軍行動符合設定之處發事件，方實施預備性阻絕設置作業；常用於友軍通過雷區後，關閉預留之雷區通路，填補雷區間隙，美軍以模組式散撒佈雷系統(MOPMS)為主 2.防護型障礙物：防禦性阻絕(Defense)、安全性阻絕(Security)，常設置於接戰地區後方(近我軍)
阻絕設置	<ol style="list-style-type: none"> 1.協助戰鬥部隊之作戰計畫 2.與觀測及火力整合

原則	<p>3. 與其它障礙物整合(特別須與地形結合)</p> <p>4. 縱深設置</p> <p>5. 出其不意</p> <p>阻絕設置須留意效益評估，若我軍使用 40 分鐘設置阻絕，評估敵軍可於 10 分鐘內破障，則無設置此阻絕之必要，須重新計畫</p>
----	--

阻絕效能	<p>1. 擾亂(Disrupt)：此障礙物通常設置於接戰地區前，以增加作戰縱深，結合兵、火力以破壞敵軍隊形及作戰節奏，擾亂敵作戰時程，分割其攻擊部隊；另可用於欺敵，使其誤認我軍防禦陣地，並分散敵戰鬥梯隊，使其遠離後勤支援部隊。為達其擾亂之效果，障礙物及火力須使敵提早分散並減緩或擾亂敵行動，設置陣面所需材料係數為 0.5(約為接近路線之 1/2 寬)</p> <p>2. 轉向(Turn)：此障礙物設置結合兵、火力迫使敵轉向至我所望方向(通常為轉換接近路線進入接戰地區)。為達其轉向效果，障礙物須防止敵軍繞越或破障，可在設置之起點(Anchor Point)使用屋頂型鐵絲網(TSC)加強，並配合火力支援加強阻絕效能；設置陣面所需材料係數為 1.2</p> <p>3. 遲滯(Fix)：此障礙物設置結合兵、火力以減緩敵軍機動速度，在敵軍通過接戰地區或接近路線時，使我軍有充裕時間獲得目標、瞄準目標及殲滅敵軍，亦可使守備部隊有足夠時間脫離戰鬥。為達其遲滯效果，通常配合轉向障礙物設置，使敵提早分散至攻擊隊形，並於接戰地區遲滯敵行動；設置陣面所需材料係數為 1，須涵蓋整個接戰地區</p> <p>4. 阻止(Block)：此障礙物設置結合兵、火力使敵軍無法沿其規劃之接近路線機動，此障礙物設置須為複合式，並結合強大火力，防止敵軍繞越或破障，阻止(殲滅)敵爾後行動，通常以工兵火山佈雷系統(Volcano)結合防戰車壕實施；設置陣面所需材料係數為 2，須涵蓋整個接戰地區</p>
------	---



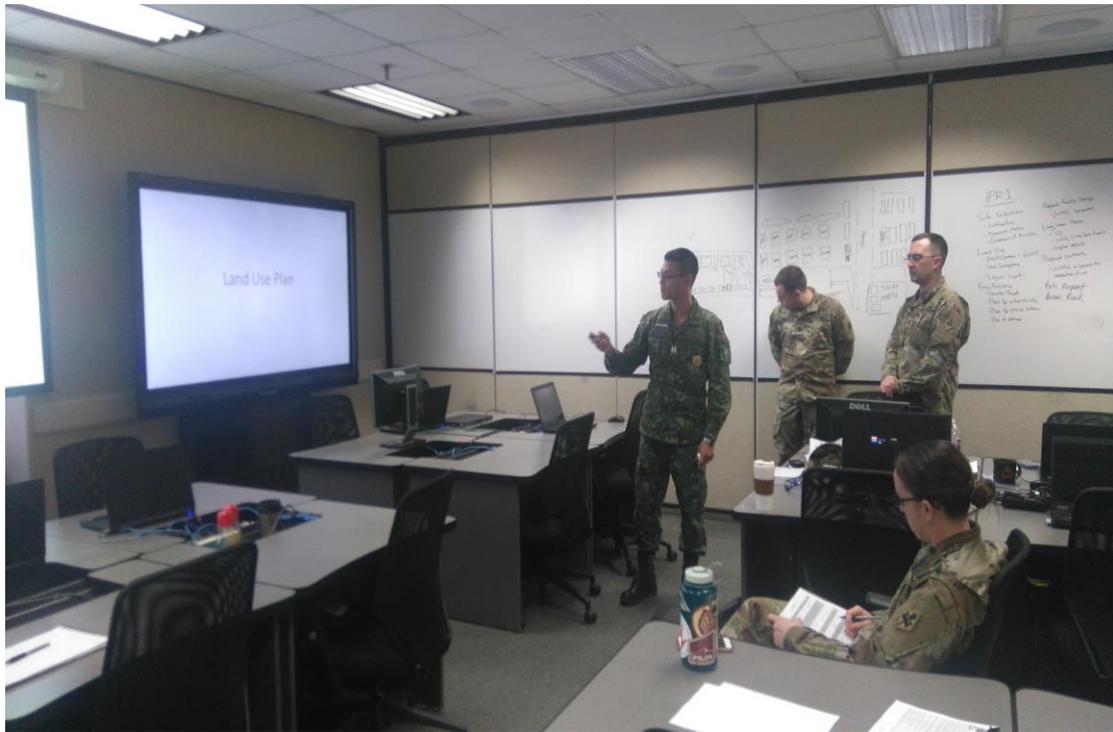
阻絕管制方法	阻絕區(Obstacle Zones)、阻絕帶(Obstacle Belts)、阻絕群(Obstacle Groups)、阻絕限制事項(Obstacle Restrictions)；依據美國陸軍工兵計畫要素及工具(Engineer Planning Factors and Tools)，使用以上管制方法為各阻絕命名：如 A1ASV 代表 A 阻絕區、第 1 阻絕帶、A 阻絕群之火山佈雷系統(Volcano)；A1BAV 則代表 A 阻絕區、第 1 阻絕帶、B 阻絕群之防戰車壕。此工兵計畫要素及工具為美軍訓練用，僅開放部份供國際軍事學員參閱。
接戰地區定義	接戰地區(Engagement Area)係指揮官預想綜合各種可用之武器及支援系統以殲滅敵軍之位置；指揮官須考量接近路線、兵力部署及武器射程等相關因素，決定接戰地區之位置、大小及形狀，在地區內投入所有兵、火力及完成阻絕設置，以發揮最大戰力殲敵於此
研擬接戰地區	<ol style="list-style-type: none"> 1. 識別敵可能接近路線(Identify likely threat AAs)：實施初步偵察(從敵軍觀點)研判敵可能接近路線、識別地形要點，並研判可供敵軍隱、掩蔽之路線，掌握以上要點，提升作戰地區內戰場透明度，並藉修正後混合障礙透明圖，使戰場環境具象化。 2. 研判敵可能兵力運用(Determine likely threat SOM)： <ul style="list-style-type: none"> ● 敵攻擊之兵力結構為何？ ● 敵可能如何運用其偵察部隊？ ● 敵可能於何時？何地？變換攻擊隊形及砲兵火力支援 ● 敵可能於何時？何地？如何？實施突擊及破障 ● 敵後續部隊投入之時間與地點為何？ ● 預期敵軍之行軍速率？ ● 研判敵可能行動方案對我軍之影響為何？ ● 敵對我行動之反應、反制作為為何？ 3. 預劃之殲敵地區(Determine where to kill the enemy)：研判敵可能兵力運用，識別我軍之火力目標基準點(Target Reference Points, TRPs)並完成標註、描繪，使連級(排組)決定與敵接戰之位置，另決定火力目標基準點之武器裝備型式、數量，明確律定各單位集火射擊目標後完成火力計畫，於完成火力部署後，目標基準點周邊建立接戰地區，即可決定殲滅敵軍之位置 4. 規劃武器系統及準備戰鬥位置(Emplace weapon systems and prepare fighting positions)：確認我軍防禦陣地及武器系統配置(地、空火力)，與友軍作戰效能緊密結合，並避免友軍間火力衝突；另選定主陣地、輔助陣地、預備陣地及後續作戰位置，確認各單位武器系統可以有效瞰制各目標基準點，以發揮各武器之最大效能 5. 計畫及整合阻絕(Plan and integrate obstacles)：在此步驟內，須決定各阻絕設置之目的，與工兵部隊之排長、識別各阻絕點及完成標記，後整合阻絕、結合火力支援、賦予各部隊任務(誰負責設置？誰負責通路關閉?)，迫敵進入接戰地區 6. 計畫及整合曲射武器(Plan and integrate observation and IDF)： <ul style="list-style-type: none"> ● 火力目標及其最佳達成位置為何？是否完成相關部署？ ● 建立觀測計畫及備用計畫 ● 針對敵軍行軍速率律定觸發事件(Triggers) ● 精確之目標位置並重複確認已涵蓋阻絕系統 ● 調整砲兵火力並規劃設置禁射區

7. 於接戰地區內實施預演(Conduct EA rehearsals)，基本演練項目包含：

- 部隊後撤並完成雷區通路關閉
- 部隊機動至防禦陣地
- 觸發事件及火力運用、兵、火力部署
- 散撒佈雷系統配置
- 準備並演練重要情報傳遞
- 評估敵軍武器系統效能對我軍之影響
- 輔助陣地及預備陣地之轉移
- 後勤補給、傷患後送演練

預演能使各級幹部及士兵均能明瞭作戰計畫，並從中發掘須修正之處，共同研討、精進；反覆及有效之演練能使全體官兵對作戰場景更為熟悉，熟悉後便能更進一步針對當前戰況靈活運用。

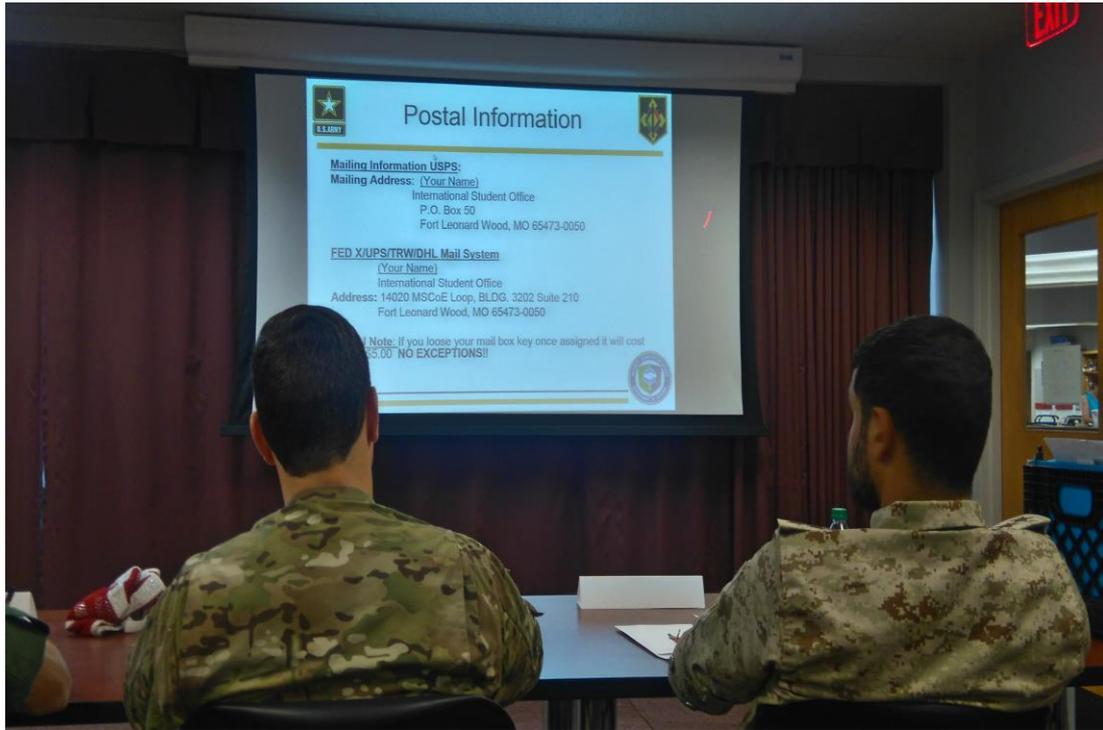
二、生活學習照片



營區規劃簡報



兵棋推演現況



準備課程課程現況



華盛頓哥倫比亞特區參訪：阿靈頓公墓



華盛頓哥倫比亞特區參訪：五角大廈



華盛頓哥倫比亞特區參訪：華盛頓市政府