First Class Cadet Training Manual

一等學員訓練手冊

Hong Kong Air Cadet Corps

香港航空青年團

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Acknowledgement

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Hong Kong Air Cadet Corps

HONG KONG AIR CADET CORPS 香港航空青年團

TRAINING GROUP 訓 練 部

Course Description 課 程 綱 要

Course Information

Category	GST
Course Code	ACC01
Course Name	Hong Kong Air Cadet Corps
Classification	First Class Cadet
Suggested Duration	2 sessions x 2 hours = 4 hours
Teaching Method	Lecture
Assessment Method	Written exam

Aims & Objectives

1.1 Aims

This course provides a brief introduction of HKACC so the members can understand the structure and activities of the Corps

1.2 Objectives

On completion of this course, cadets will be able to

1.2.1 Recognize the major unit of the Corps and distinguish their functions

1.2.2 Recognize the ranks and classifications of the Corps

1.2.3 Recognize the badge and insignia of the Corps

Syllabus

2.1 Introduction

2.1.1 Objectives and Purposes

2.1.2 Organization Structure of HKACC

2.1.3 Membership

2.1.4 Uniform

2.2 Rank and Classification

2.2.1 Rank and Classification of Cadets
2.2.2 Rank Insignia of Senior Members
2.2.3 Aviation Badges
2.2.4 Medals

Teaching Method

Lectures will be conducted to teach the development of HKACC as well as the structure of the Corps. Real images of ranks and insignia would be recommended for better recognition. Photo albums sharing is also a good presentation to cadets about life in HKACC.

Assessment

Written exam will be conducted to assess cadets' knowledge gained through the course about the Corps.

Examination Hours	0.5 hours
Exam	100%
Practical Assessment	0%
Coursework (Project)	0%

Suggested Readings

NIL

1. Objectives and Purposes

1.1 **The Hong Kong Air Cadet Corps (HKACC)** is organized to provide the young people of Hong Kong an opportunity to take part in aviation education, leadership development and community services. It aims to develop young people to be responsible citizens and to introduce to them the modern world of aviation.

1.2 Founded on **7 April 1971**, the HKACC has the following objectives and purposes:

a. To provide an organization to encourage and aid the people of Hong Kong in their contribution of their efforts, services and resources in the development of civil aviation.

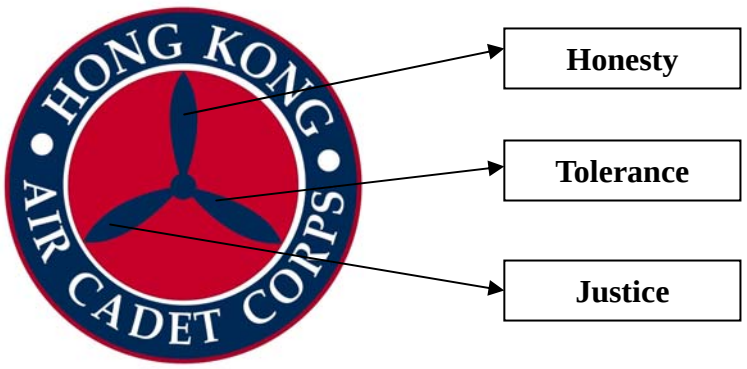
b. To encourage and develop by example the voluntary contribution of private citizens to the public welfare.

c. To develop within the youth of Hong Kong, by example and inspiration, the qualities of leadership and good moral character.

d. To promote international goodwill by participating in exchange programmes, rallies, conferences and other activities with overseas youth organizations.

2. The HKACC Badge

The Badge of the Hong Kong Air Cadet Corps comprises a three-bladed propeller and is encircled with the wording "Hong Kong Air Cadet Corps". The propeller represents HKACC's aviation theme and its blades symbolize the three important qualities of a leader: - **Honesty**, **Tolerance** and **Justice**.



3. Organization of the HONG KONG AIR CADET CORPS

Refer to the current organization chart of the HKACC.

4. Executive Board (EB)

The governing body of the HKACC is the ***Executive Board***.

The Executive Board is composed of

1) The Chairman;
2) The Vice-Chairman;
3) The Commandant;
4) The Commanding Officer;
5) The Honorary Treasurer;
6) The Honorary Secretary; and
7) up to 14 other members

Executive Board Members other t han the Commandant and the Commanding Officers are elected by ***Voting Members*** of the Corp s at the Annual Gener al Meeting.

The Commandant and the Commanding Of ficer are appointed by the Executive Board and are ***ex-efficio members*** of the Board. The ***Commandant***, who normally holds the rank of Air Commodore, i s the ***titular head*** of the HKACC, and is the most senior uniformed member in the Corps.

5. Headquarters (HQ)

5.1 The *chief executive* of the HK ACC is th e ***Commanding Officer*** **(CO)** who normally holds the rank of Group Captain.

5.2 ***The Headquarters, Hong Kong Air Cadet Corps (HQ HKACC)*** is responsible for the day to day operation of the Corps.

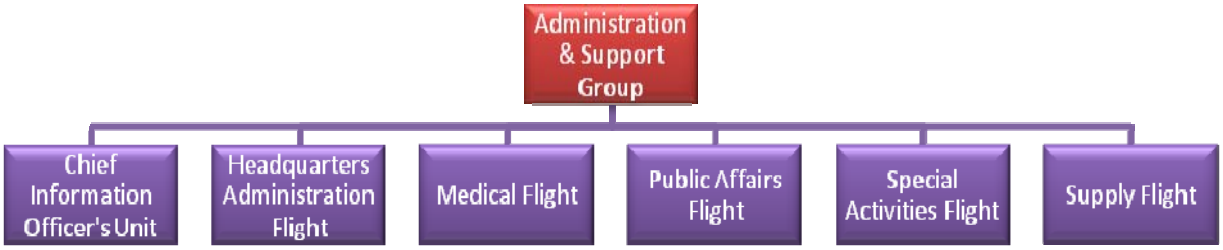
5.3 The Corp s is made up of ***major units (groups and wings***) and ***units (squadrons and flights)***, each with an ***Officer Commanding (OC)*** as the unit head. Squadrons (see below) are organiz ed into three regional w *ings* (Hong Kong Island Wing , Kowloon Wing and New T erritories Wi ng) and one specialist pan-regional wing (No 6 Wing).

Wings, squadrons and flight s are in turn organised into ***groups*** established broadly on a functional bas is (Adminis tration & Support Gr oup, Institutional Advancement Group, Operations Group, Training Group).

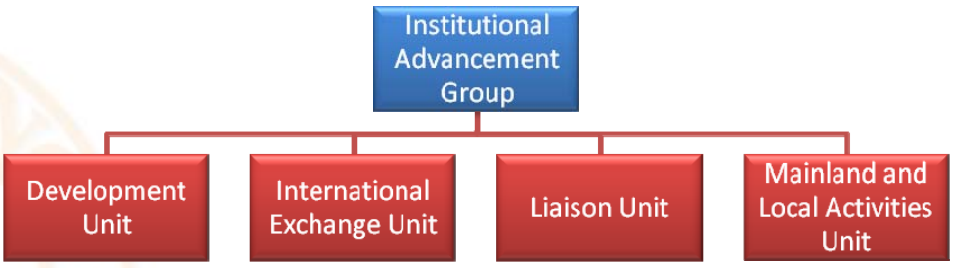
In addition, the ***Flying Squadron*** is in charge of fli ght operations and safety within the Corp s, w hereas the ***Commanding Officer's Office*** provides specialist services to the CO on ma tters pertaining to Honorary Officers coordination, legal affairs, and liaison with United Kingdom/Canada.

5.4 ***Senior officers*** (Squadron Leader to Group C aptain) command groups and wings. Other units are usually under the charge of ***junior officers*** (Pilot Officer to Flight Lieutenant).

5.5 ***Administration & Support Group***: C hief Infor mation Officer's Unit, Headquarters Administration Flight; Medi cal Flight, Public Affairs Flight; Special Activities Flight and Supply Flight.

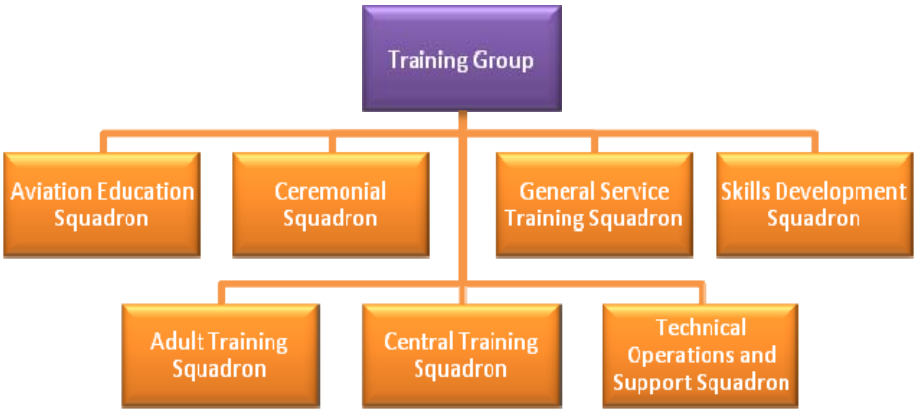


5.6 ***Institutional Advancement Group***: Development Unit; Internati onal Exchange Unit; Liaison Unit and Mainland and Local Activities Unit.

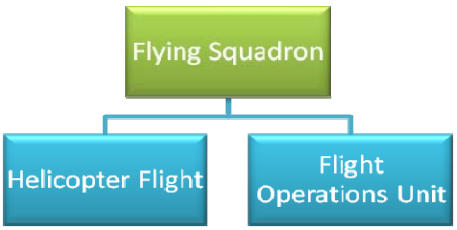


5.7 ***Operations Group***: Hong Kong Island Wing; Kowlo on Wing; New Territories Wing, No. 6 Wing and Operations Support Wing.

5.8 ***Training Group***: Adult Training Squadron; Av iation Education Squadron; Ceremonial Squadron; Central Training Squadron; General Service Training Squadron, Skills Development Squadr on and Tec hnical Operations and Support Squadron.



5.9 ***Flying Squadron***: Helicopter Flight and Flight Operations Unit.



5.10 ***Commanding Officer's Office***: Honorary Of ficers Coordination Unit; Legal Consultant; Liaison Officer (United Kingdom) and Liaison Officer (Canada).

6. Squadron (Sqn)

6.1 The basic operating uni t of the HKACC is the ***Squadron***. It is where air cadets have their regular meetings and tr aining. The minimum strength of a squadron is ***35*** cadets.

6.2 A squadron has a meeting plac e such as a school, a community centre or a public building. Each squadron is comm anded by a junior of ficer, who is normally assisted by a cadre of s enior members and cadet non-commissioned officers.

7. Membership

Non-uniformed Members	Uniformed Members
• Patron • Vice-Patrons • Executive Board Members (non-uniformed) • Civilian Instructors • Associate Members	• Senior Members: Officers, Honorary Officers, Warrant Officers, Instructors, and Trainees • Cadet Members

8. Enrollment Qualification for Cadet Members

8.1 To be eligible for enrollment as a Cadet Member, a candidate should:

(a) have attained his/her 11th but not his/her 20th birthday;

(b) be willing to undertake disciplinary training;

(c) be of good moral character;

(d) have a reasonable k nowledge of the Chines e and the English languages;

(e) be able to p ay the annual membersh ip fee and other expenses in the Corps;

(f) have his/her parents' or guardians' consent; and

(g) not belong to another cadet organization.

9. Record of Service

9.1 The Cadet Training Record Book is pres ented to a cadet at the time of his/her enrollment and it maint ains the record of all activities a cadet p articipated, such as training, examinations passed and community services achieved.

10. Uniform

10.1 Cadets are required to wear HKACC uniform when:

(a) engaging in official HKACC duties;

(b) attending HKACC meetings;

(c) making public appearances as part of an HKACC group;

(d) attending official functions as a representative of the HKACC; and

(e) flying under HKACC Flight orders.

10.2 Uniform must not to be worn

(a) in any public place where the environm ent may tend to dis credit the HKACC or its members;

(b) when engaging in political activities;

(c) when engaging in paid employment not connected with the HKACC;

(d) when participating in sports events; and

(e) when attending social functions not connected with the HKACC.

10.3 Dress Regulations

Please refer to the Dress Regulations of the Hong Kong Air Cadet Corps.

11. Ranks and Classifications

11.1 Ranks

HKACC is a uniformed group with an air force style rank structure:

Cadet Members	Senior Members (Trainees)	Senior Members (Warrant Officers and Instructors)	Senior Members (Officers)
Recruit Cadet (RC)	Recruit Instructor (RI)	Instructor (Instr)	Pilot Officer (Plt Off)
Basic Cadet (BC)	Officer Trainee (OT)	Sergeant Instructor (Sgt Instr)	Flying Officer (Fg Off)
Cadet Corporal (Cpl)	Officer Cadet (Off Cdt)	Warrant Officer (WO)	Flight Lieutenant (Flt Lt)
Cadet Sergeant (Sgt)			Squadron Leader (Sqn Ldr)
Cadet Flight Sergeant (FS)			Wing Commander (Wg Cdr)
Cadet Warrant Officer (CWO)			Group Captain (Gp Capt)
			Air Commodore (Air Cdre)

Air Commodore is the only ***Air Officer*** rank of the HKACC. Squadron Leaders, Wing Commanders, Group Captains are ***Senior Officers***, whereas Pilot Officers, Flying Officers and Flight Lieutenants are ***Junior Officers***. Officer Cadets and Officer Trainees are senior members undergoing training to become commissioned officers.

There are two ranks in the Instructor grade: Instructor and Sergeant Instructor. Warrant Officers may be promoted from qualified Sergeant Instructors with considerable service experience. Recruit Instructors are senior members on basic training for possible appointment as Instructors

There are two levels of Cadets Non-commissioned officers (NCOs): Cadet Warrant Officers and Cadet Flight Sergeants and Cadet Sergeants are ***Senior Non-commissioned officers (SNCOs)***, whilst Cadet Corporals are ***Junior Non-commissioned officers (JNCOs)***.

11.2 Classifications

A ***Cadet Classification System*** is implemented to recognize a cadet's achievement and advancement in training. There are four Cadet Classifications: First Class Cadet, Leading Cadet, Senior Cadet & Staff Cadet.

Cadets are eligible for promotion to *non-commissioned officer* (NCO) ranks on the successful completion of the required NCO Training Course and on attainment of a corresponding Cadet Classification:

Rank	Required Classification
Cadet Corporal	First Class Cadet
Cadet Sergeant	Leading Cadet
Cadet Flight Sergeant	Senior Cadet
Cadet Warrant Officer	Staff Cadet

12. Rank Insignia and Badges

12. 1 Rank Insignia

Trainees **見習人員**	**Warrant Officers and Instructors** **准尉及訓練員**	**Officers 長官**		
		Junior Officers **初級長官**	**Senior Officers** **高級長官**	**Air Officers** **將官**
Recruit Instructor 見習訓練員	Instructor 訓練員	Pilot Officer 少尉	Squadron Leader 少校	Air Commodore 准將
				
Officer Trainee 長官學員	Sergeant Instructor 高級訓練員	Flying Officer 中尉	Wing Commander 中校	
				
Officer Cadet 見習長官	Warrant Officer 准尉	Flight Lieutenant 上尉	Group Captain 上校	
				
JUNIOR ----------→ SENIOR				

Rank 職級		Cadet Classification 學員段章	
-	Recruit Cadet 初級學員	-	JUNIOR
-	Basic Cadet 基本學員	-	
Junior Non-Commissioned Officer (JNCO) (初級士官)	Cadet Corporal 下士 	First Class Cadet 一等學員 	
Senior Non- Commissioned Officer (SNCO) (高級士官)	Cadet Sergeant 中士 	Leading Cadet 二等學員 	
	Cadet Flight Sergeant 上士 	Senior Cadet 三等學員 	SENIOR
	Cadet Warrant Officer 學員准尉 	Staff Cadet 四等學員 	

12.2 Aviation Badges

Pilot	Air Crew
	
Parachuting Instructor	**Glider Pilot**
	
Senior Glider Aviator	**Parachutist**
	
Glider Aviator	**Aeromodel Pilot I (Gold)**
	
Aeromodel Pilot II (Sliver)	**Aeromodel Pilot III (Bronze)**
	

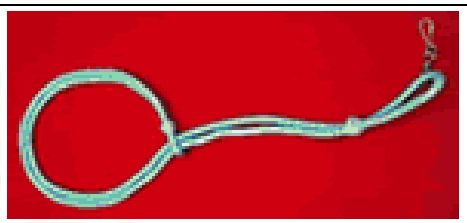
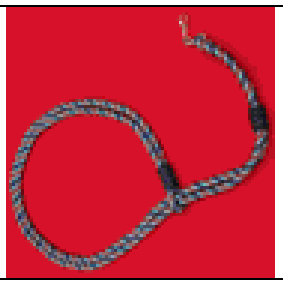
12.3 Service Dress Cap Badges

Service Dress Cap Badge (Air Officers)	Service Dress Cap Badge (Officers up to the rank of Group Captain, Warrant Officers, Officer Cadets & Officer Trainees)
	
Service Dress Cap Badge (Instructors & Cadet Members)	
	

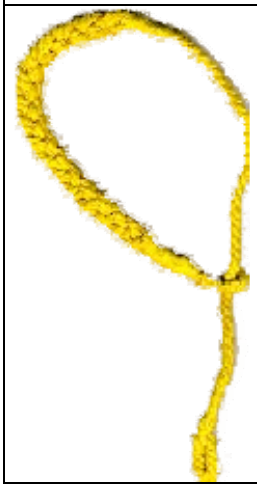
12.4 Beret Badges

Beret Badge (Senior Members)	Cap and Beret Badge (Cadet Members)
 (Gold)	 (Silver)

12.5 Other Insignia

Shoulder Badge	Squadron Identification Badge
	
First Aider Badge (St John Ambulance)	**Honour Guard**
	
Marksman (Cadet Members)	**Marksman (Senior Members)**
	
Physical Achievement Instructor	**Awardee of the Hong Kong Award for Youth Scheme**
	
Commander's Insignia	**Cadet Community Service Award**
	
Honorary Officer's Lanyard	**Commandant's Commendation Lanyard**
	

12.6 Cadet Classification Badges

Staff Cadet	Senior Cadet	Leading Cadet	First Class Cadet
			

13. Decorations and Medals

Hong Kong Air Cadet Corps Decorations and Medals can be conferred to individuals for distinguished or meritorious services, long services and good conduct, or meritorious contributions of a special nature to the Corps.

1. **Hong Kong Cadet Forces Medal for Distinguished Service**
2. **Hong Kong Cadet Forces Medal for Meritorious Service**
3. **Hong Kong Cadet Forces Medal**
4. **Hong Kong Air Cadet Corps Gold/Silver/Bronze Medal of Special Merit**
5. **Hong Kong Air Cadet Corps Honorary Officer's Efficiency Award**
6. **Hong Kong Air Cadet Corps 30th Anniversary Commemorative Medal**

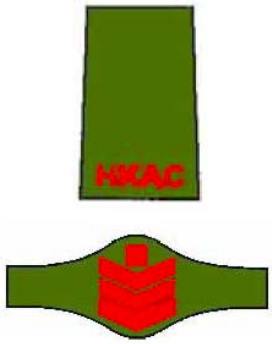
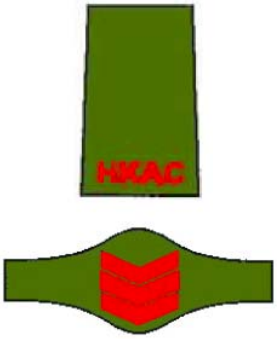
Appendix Hong Kong Cadet Forces (HKCF) Ranking

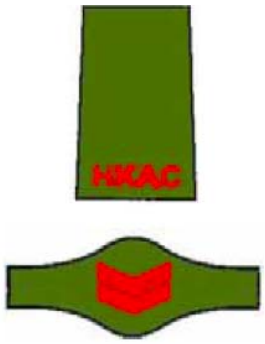
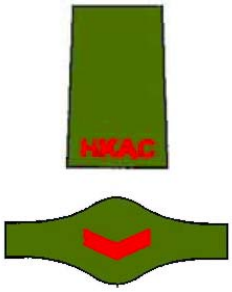
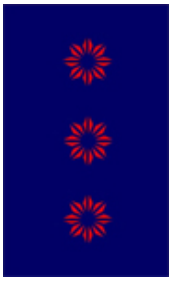
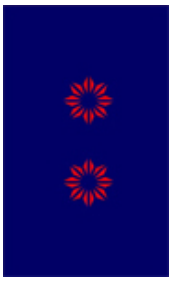
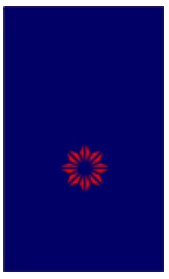
Hong Kong Adventure Corps	Hong Kong Air Cadet Corps	Hong Kong Sea Cadet Corps
Officer		
		N/A
Brigadier	Air Commodore	
		
Colonel	Group Captain	Captain
		
Lieutenant Colonel	Wing Commander	Commander
		
Major	Squadron Leader	Lieutenant Commander

Hong Kong Adventure Corps	Hong Kong Air Cadet Corps	Hong Kong Sea Cadet Corps
		
Captain	**Flight Lieutenant**	**Lieutenant**
		
Lieutenant	**Flying Officer**	**Sub-Lieutenant**
		
Second Lieutenant	**Pilot Officer**	**Midshipman**
N/A		**N/A**
	Officer Cadet	
N/A		**N/A**
	Officer Trainee	

Hong Kong Adventure Corps	Hong Kong Air Cadet Corps	Hong Kong Sea Cadet Corps
		N/A
Warrant Officer Class 1	Warrant Officer	
	N/A	N/A
Warrant Officer Class 2		
	N/A	
Staff Sergeant		Chief Petty Officer

Hong Kong Adventure Corps	Hong Kong Air Cadet Corps	Hong Kong Sea Cadet Corps
		
Sergeant	**Sergeant Instructor**	**Petty Officer**
	**N/A**	**N/A**
Corporal		
		
Instructor	**Instructor**	**Acting Petty Officer**

Hong Kong Adventure Corps	Hong Kong Air Cadet Corps	Hong Kong Sea Cadet Corps
N/A		N/A
	Cadet Warrant Officer	
		N/A
Cadet Staff Sergeant	Cadet Flight Sergeant	
		N/A
Cadet Sergeant	Cadet Sergeant	

Hong Kong Adventure Corps	Hong Kong Air Cadet Corps	Hong Kong Sea Cadet Corps
		
Cadet Corporal	**Cadet Corporal**	**Leading Cadet**
	**N/A**	
Cadet Lance Corporal		**Able Cadet**
N/A	**N/A**	
Cadet	**Basic Cadet**	**Ordinary Cadet**
N/A	**N/A**	
		Junior Cadet
Recruit	**Recruit Cadet**	**New Entry**

2

Customs & Courtesies

HONG KONG AIR CADET CORPS 香港航空青年團

TRAINING GROUP 訓 練 部

Course Description 課 程 綱 要

Course Information

Category	GST
Course Code	ACC02
Course Name	Customs and Courtesies
Classification	First Class Cadet
Suggested Duration	2 meetings x 1.5 hours = 3 hours
Teaching Method	4 Sessions of Lectures, 45 minutes each
Assessment Method	Written assessment

Aims & Objectives

1.1 Aims

This course not only provides an overview of Customs and Cour tesies adopted in the HKACC but also covers the topics such as Restrictions and Norms, Reporting and Request, the C adet Pledge, Definition of Discipline as well as Saluting and Compliments.

1.2 Objectives

On completion of this course, cadets will be able to

1.2.1 Have proper observance of the Customs and Courtesies
1.2.2 Understand the Cadet Pledge and Definition of Discipline
1.2.3 Understand the meaning and importance of Saluting
1.2.4 Give Saluting and Compliments properly under different situations

Syllabus

2.1 General

2.1.1 Introduction
2.1.2 Customs and Courtesies – An Overview
2.1.3 Restrictions and Norms
2.1.4 Reporting
2.1.5 The Cadet Pledge
2.1.6 Definition of Discipline
2.1.7 Relative seniority of HKACC uniformed members

2.2 Saluting and Compliments

2.2.1 Introduction
2.2.2 Overview
2.2.3 Officers - Saluting
2.2.4 Junior Officers – Paying compliments to each othe
2.2.5 Warrant Officers, Sergeant Instructors, Instructors, Officer Cadets/Officer Trainees, Recruit Instructors and cadet members - Saluting
2.2.6 Warrant Officers, Sergeant In structors, Instructors, Of ficer Cadets/Officer T rainees, Recr uit Instructors and cadet members – Paying compliments to each other
2.2.7 General Salute
2.2.8 During the Playing of the National Anthem
2.2.9 During the Hoisting or Hauling Down of The HKACC Flag
2.2.10 Funerals
2.2.11 Colours and Standards
2.2.12 Boarding or Leaving Naval Vessels
2.2.13 Mechanical Vehicles
2.2.14 Parties on the March
2.2.15 Cenotaph
2.2.16 Proper Forms of Address

Teaching Method

Lectures and case simulation will be used to emphasize theories and application of Customs and Courtesies.

Behaviours and responses under differ ent scenarios will be demonstrated by video clips.

Assessment

Examination Hours	1 hour
Written Exam	100%
Practical Assessment	0%
Coursework (Project)	0%

Suggested Readings

NIL

Part I General

1 Introduction

1.1 Customs and courtesies (C&C) play an important part in all Hong Kong Air Cadet Corps (HKACC) activities and they contribute to build up a sense of discipline and an 'Esprit de Corps' in every member. There is a fine line separating customs from courtesies but each is rooted from the same source – respect between two individuals for each other. Both customs and courtesies must be observed by all members of the HKACC.

1.2 The same C&C extended by members to HKACC officers are also extended to –

(a) officers of the Hong Kong Sea Cadet Corps (HKSCC), the Hong Kong Adventure Corps (HKAC) and other Uniform Group in Hong Kong;

(b) officers of the rank of Inspector (or equivalent) and above in the Hong Kong Government Disciplined Services (e.g. Police, Government Flying Service, etc.);

(c) officers of the People's Liberation Army; and

(d) officers of the armed forces of allied or friendly nations (e.g. UK, USA).

1.3 Acts of courtesies are not marks of inferiority or servility. Rather, they are indications that one person appreciates the position, responsibilities and right of another. C&C foster a feeling of pride, respect and comradeship between individuals and they express a high state of unit pride and individual self-respect.

1.4 C&C work both ways for juniors and seniors in the HKACC. The courtesy paid to a senior rank is an acknowledgment of the responsibility and authority of his/her position. The courtesy shown to a junior rank is an acknowledgment of his/her essential role as a member of a team. Senior Members and Cadet Non-commissioned Officers (NCOs) are responsible for supervising and directing their subordinates to properly observe C&C.

2 Customs and Courtesies – An Overview

2.1 RESPONSE – is one of the most important quality of a member. One must give prompt and proper response or answers to questions from his/her superior. Silence is meaningless. A member should respond to questions posed by a superior in three basic ways in a loud and clear voice:

"YES SIR /MA'AM*"

"NO, SIR / MA'AM*"

"I DON'T KNOW, SIR /MA'AM*"

*Note: "SIR" or "MA'AM" is to be substituted by
"SERGEANT" in the case of Sergeant Instructor
"INSTRUCTOR" in the case of Instructor
"WARRANT OFFICER" in the case of Cadet Warrant Officer
"FLIGHT SERGEANT" in the case of Cadet Flight Sergeant
"SERGEANT" in the case of Cadet Sergeant
"CORPORAL" in the case of Cadet Corporal
"LEADER" in the case of a cadet member placed in the position of a Team Leader

2.2 When a fault has been pointed out by the superior or unable to perform a task, the member should declare:

"NO EXCUSE, SIR / MA'AM*"

with a loud and clear voice. He/she should not offer any explanation unless requested.

2.3 A superior's order is ordinarily accepted without questions.

2.4 A superior's words like "I wish" or "I desire" has all the force of "I order you".

2.5 The place of honour is at the right. A junior walks or sits to the left. A guest at a dinner party is seated to the right of the host.

2.6 HKACC members should greet a lady with a slight bow or a salute. The uniform cap should not be tipped or raised in greeting.

2.7 HKACC members should escort a lady by walking on her right so that he can salute with his right hand.

2.8 One must learn to OBEY before he may COMMAND.

2.9 Personal appearance must be exemplary at all times.

2.10 The most senior member in a group has the privilege of being the first to choose the seat, food and drink.

2.11 Official channel of approach and co mmunication is through CHAIN OF COMMAND. It should be observed and followed by all members of the Corps.

3 Restrictions and Norms

3.1 Do not behave in any way which might defame the Corps.

3.2 Do not use the HKACC uniform, emblem or title for commercial purposes.

3.3 Do not us e or disp lay HKACC uniform, emblem or title when engaging in political activities.

3.4 Do not criticize the Corp s in fr ont of non-members. If y ou feel an improvement can be made, forw ard a suggestion to your superior through the chain of command.

3.5 Do not bypass the chain of command.

3.6 Do not criticize your colleagues in front of the others.

3.7 Do not lean on a superior's desk; stand straight unless invited to sit.

3.8 Do not drink alcoholic beverages in uniform whilst on duty.

3.9 Do not smoke or chew gum in uniform.

3.10 Do not solicit contributions for presents to those in higher positions, nor accept a present from anyone who has a subordinate position.

3.11 Do not put your hands in the pockets of the uniform trousers/slacks.

3.12 Be punctual.

3.13 There are no personal friendships in the HKACC as far as C&C are concerned. During of ficial HKACC activities, a ll members will observe the proper C&C regardless of how well they know one another.

3.14 When an officer enters the room, all persons with a lower rank should st and or sit attention immediately until the officer directs:

"SEATS" or "AT EASE"

or until he/her leaves t he room. Normally , the FIRST one who sees the officer should call out:

"(SIT) ATTENTION"

loudly and clearly to let other mem bers know . However , when an of ficer enters a room used as an of fice, works hop, recreation room or classroom in which activities are in progr ess, those at work, play or lesson are not required to come to attention unless addressed by that officer.

4 Reporting

4.1 When reporting to a superior outdoors, a member should come to attention two paces in front of the superior, salute (where appropriate) and say:

**"SIR / MA'AM */ [RANK] [NAME]
REPORTING AS ORDERED, SIR / MA'AM * ."**

in a loud and clear voice. If the superior is engaged, wait until he/she acknowledges you before reporting.

4.2 When reporting to a superior indoors, a member should stand to attention outside the door and face the superior, knock the door three times and say:

"SIR / MA'AM * [RANK] [NAME] REQUESTS PERMISSION TO ENTER THE ROOM, SIR / MA'AM *."

and remain outside the door until told to enter.

4.3 When leaving a superior indoors, a member should stand to attention by the door, knock the door three times and say:

"SIR / MA'AM * [RANK] [NAME] REQUESTS PERMISSION TO LEAVE THE ROOM, SIR / MA'AM *."

and remain standing next to the door until told to leave.

4.4 When leaving a superior outdoors, stand to attention (salute where appropriate) and say **"SIR/MA'AM*"**, in a loud and clear voice. When the superior has returned your compliment, make an about turn and leave:

4.5 When reporting to a superior in charge of a formation, stand to attention two paces in front of him/her (salute where appropriate) and say:

"SIR / MA'AM * [RANK] [NAME] REQUESTS PERMISSION TO JOIN THE TEAM, SIR / MA'AM *."

5 The Cadet Pledge

5.1 "SIR/MA'AM *, I pledge that I will serve faithfully in the Hong Kong Air Cadet Corps, and that I will attend meetings regularly, participate in unit activities, obey my superiors, wear my uniform properly and advance my training rapidly so that I may be of service to my community and my fellow citizens, SIR/MA'AM *"

6 Definition of Discipline

6.1 "SIR/MA'AM *, discipline is that m ental attitude and st ate of training which renders willing obedience and proper conduct instinctive under all conditions . It is founded on respect for and l oyalty to all properly constituted authorities, SIR/MA'AM *.

7 Relative seniority of HKACC uniformed members

7.1 Air Commodore

Group Captain

Wing Commander

Squadron Leader

Flight Lieutenant

Flying Officer

Pilot Officer

Warrant Officer

Sergeant Instructor

Instructor

Officer Ca det/Officer T rainee *(Officer Trainees below the age of 21 are considered Senior Members for the purpose of determining seniority)*

Recruit Instructor

Cadet Warrant Officer

Cadet Flight Sergeant

Cadet Sergeant

Cadet Corporal

Staff Cadet (if not a Cadet Non-commissioned Officer)

Senior Cadet (if not a Cadet Non-commissioned Officer)

Leading Cadet (if not a Cadet Non-commissioned Officer)

First Class Cadet (if not a Cadet Non-commissioned Officer)

Basic Cadet

Recruit Cadet

PART II Saluting and Compliments

1 Introduction

1.1 A salute is a sign of loyalty to the HKACC. Saluting by subordinates to officers is a recognition of the Executive Board's Commission, being indirectly a salute to the HKACC through the individual holding the authority of the Corps. Returning a salute by an officer to a subordinate is not an acknowledgment of his/her salute to the officer personally, but a recognition of the fact that through an officer he/she has given an outward sign of his/her loyalty to the Corps and to his/her fellow members.

1.2 Discipline has been defined as 'that quality which transforms a disorganized rabble into an efficient unit'. The manner in which salutes are given and acknowledged is an indication for all to judge the standard of discipline in any particular unit. It is naturally distasteful to any officer that, from slackness in saluting, his own unit or, worse still, the service to which he has the honour to belong, should be looked upon by others as a 'disorganized rabble'.

1.3 It is the responsibility of all members to maintain that saluting is carried out correctly and smartly.

2 Officers - Saluting

2.1 Junior officers (Flight Lieutenants, Flying Officers and Pilot Officers) would be incorrect in saluting each other, irrespective of any appointments they may hold. They salute only on the following occasions:

(a) A subordinate officer salutes to a superior officer in acknowledgment of an order given personally on parade.

(b) A subordinate officer salutes to a superior officer on entering and leaving the latter's office.

2.2 Officers below the rank of Squadron Leader are to salute officers of and above that rank, as well as officers of equivalent rank and above in the Hong Kong Sea Cadet Corps (Lieutenant Commander), the Hong Kong Adventure Corps (Major), Hong Kong Government Disciplined Services and Auxiliary Forces (Superintendent, Divisional Officer, Assistant Principal Immigration Officer, Government Flying Service Officer with the rank insignia of one bauhinia, Auxiliary Medical Service Grade Senior V Officer and Civil Aid Service Grade Senior V Officer), the armed forces of the People's Republic of China (少校) and friendly nations (e.g. UK, USA) (see Appendix). Officers of the rank of Squadron Leader and above are to salute their superior officers.

2.3 Officers are to salute with the right hand, unless physically unable to do so, in which case they are to salute with left hand.

2.4 Officers are to return salutes made to them. In returning salutes, officers should look in the direction of the persons saluting to them.

2.5 When a number of officers are together, it is the responsibility of the most senior officer present to return the salute. If the most senior officer fails to see the salute, it is the duty of the next senior officer in the party to acknowledge it.

2.6 A junior officer when addressing a senior officer is to halt two paces from the senior officer. He/she is then to salute, address the senior officer and salute again before withdrawing.

2.7 When a number of junior officers are walking together, they are all to salute when passing or overtaking a senior officer, except when they are being marched as a party.

2.8 When two or more junior officers are sitting or standing together the junior officer with the highest rank is to face the senior officer and call the whole party to attention before saluting. It is the responsibility of the junior officer of the highest rank to salute.

2.9 When a junior officer sees a senior officer approaching, he/she will stand to attention, face the senior officer and salute when the senior officer is about three paces away. The junior officer can resume a normal posture after the salute has been returned or about five paces after the senior officer has passed.

2.10 When headdress is not worn or when a junior officer is carrying anything other than his/her arms which prevent him/her from saluting, the member is to stand to attention when a senior officer passes by. If the junior officer is walking, he/she is to turn his/her head smartly towards the senior officer.

2.11 Junior officers not in uniform do not salute but will render an appropriate greeting instead. However, when a junior officer in uniform recognizes a senior officer in civilian clothes the junior officer will salute to the senior officer.

3 Junior Officers – Paying compliments to each other

3.1 A junior officer when addressing another junior officer superior in rank is to halt two paces from the superior. He/she is stand to attention while addressing the superior.

3.2 When a number of junior officers are walking together, they are all to perform “eyes right” or “eyes left” when passing or overtaking a junior officer which outranks them.

3.3 When a junior officer sees another junior officer of a higher rank approaching,

he/she will stand to attention and face the superior when he/she is about three paces away. The junior officer of lower rank can return to a normal posture after the compliment has been returned or about five paces after the superior has passed.

3.4 When headdress is not worn, a junior officer is to stand to attention when a junior officer of superior rank passes by. If the junior officer with a lower rank is walking, he/she is to turn his/her head smartly towards the superior.

3.5 Junior officers not in uniform do not salute but will render an appropriate greeting instead.

4 Warrant Officers, Sergeant Instructors, Instructors, Officer Cadets/Officer Trainees, Recruit Instructors and cadet members - Saluting

4.1 All members of and below the rank of Warrant Officer will salute to all officers (Pilot Officer and above). In addition, all HKACC members will salute to officers of the Hong Kong Government Disciplined Services and Auxiliary Forces, the People's Liberation Army, the Hong Kong Sea Cadet Corps, the Hong Kong Adventure Corps and officers of friendly foreign nations in accordance with circumstances as dictated by C&C.

4.2 Members are to salute with the right hand unless physically unable to do so, in which case they are to salute with the left hand.

4.3 A member when addressing an officer is to halt two paces from the officer. He/she is then to salute, address the officer and salute again before withdrawing.

4.4 When a number of members are walking together, they are all to salute when passing or overtaking an officer, except when they are being marched as a party.

4.5 When two or more members are sitting or standing together the member with the highest rank is to face the officer and call the whole party to attention before saluting.

4.6 When a member sees an officer approaching, he/she will stand to attention, face the officer and salute when the officer is about three paces away. The member will return to a normal posture after the salute has been returned or about five paces after the officer has passed.

4.7 When headdress is not worn or when a member is carrying anything other than his/her arms which prevent him/her from saluting, the member is to stand to attention when an officer passes by. If a member is walking, he/she is to turn his/her head smartly towards the officer.

4.8 Members not in uniform do not salute but will render an appropriate greeting instead. However, when a member in uniform recognizes an officer in civilian clothes the member will salute to that officer.

5 Warrant Officers, Sergeant Instructors, Instructors, Officer Cadets/Officer Trainees, Recruit Instructors and cadet members – Paying compliments to each other

5.1 All members of and below the rank of Warrant Officer do not salute each others.

5.2 A member when addressing a superior is to halt two paces from the latter. He/she is stand to attention while addressing the superior.

5.3 When a number of members are walking together, they are all to perform "eyes right" or "eye left" when passing or overtaking a superior, except when they are being marched as a party.

5.4 When a member sees a superior approaching, he/she will stand to attention and face the senior when he/she is about three paces away. A member can resume a normal posture after the compliment has been returned or about five paces after the superior has passed.

5.5 When headdress is not worn, a member is to stand to attention when a superior passes by. If a member is walking, he/she is to turn his/her head smartly towards the superior.

5.6 Members not in uniform will render an appropriate greeting instead.

6 General Salute

6.1 If a band is in attendance, on the command:

"GENERAL SALUTE"

all officers are to salute on the word of command **"SALUTE"** and the band is to play the appropriate salute. The salute is to be discontinued on the last note of music.

6.2 If no band is present and members are not armed, then when the command **"GENERAL SALUTE"** is given all officers are to salute on the word of command **"SALUTE"** and the salute is to be maintained for a period of five seconds before the right hand is returned to the position of attention.

7 During the Playing of the National Anthem

7.1 When the National Anthem or a foreign anthem is played, all personnel in uniform, not under the orders of an officer commanding a parade will stand at attention, face the direction of the music and salute. If wearing civilian clothes they are to remove headdress.

7.2 If the anthem is played during a ceremonial parade, those officers on a parade in Review order, acting under the orders of the officer commanding the parade, will salute.

7.3 When the anthem is played within a building, individual members wearing uniform are to stand to attention and remove headdress.

7.4 When a party of members is on the march and the anthem is played the commander of the party is to halt them and he is to salute.

7.5 When a party is halted, the commander of the party is to call them to attention, and he is to salute during the playing of the anthem.

7.6 On other occasions when there is no parade, or on occasions which are not of a service nature, officers will face the band and if in uniform wearing headdress, will salute.

8 During the Hoisting or Hauling Down of The HKACC Colour

8.1 On occasions when the HKACC Flag is being hoisted or hauled down, all ranks within view of the flag or within hearing of the trumpet calls, are to stand to attention and face the flagstaff. Officers will face the flagstaff and salute.

9 Funerals

9.1 Individual members passing or being passed by a service or civil funeral will salute the coffin or urn containing the remains of the deceased. A commander in charge of a party will give the “eyes right (or left)” and salute.

10 Standards and Colours

Individual members passing or being passed by a party with an uncased colour/standard are to salute the colour or standard. They are to halt and face the colour/standard before saluting. Cased colours/standards are not saluted. (Examples of colours/standards are: The HKACC Colour, Wing Standards, Squadron Standards, Guildons or Colours of army regiments and uniformed groups.)

EXCEPTION - Units, parties of individuals paraded on a service funeral, whilst in attendance upon the deceased will not pay any compliments to any colours or standards forming parts of the escort included in the procession.

11 Boarding or Leaving Naval Vessels

11.1 When boarding or leaving any of naval vessels, all ranks are to salute the quarterdeck.

12 Mechanical Vehicles

12.1 The rider of a pedal cycle (or motor) or a mechanical vehicle, is not to salute when the vehicle is in motion. On no account must the hands be removed form the handle bars or steeling wheel. When the vehicle is stationary, the driver is to turn his head smartly towards the officer and the passenger will seat at attention.

12.2 Members are to salute the occupants of a vehicle carrying plates signifying high government officials, e.g. the HKSAR Emblem (the Chief Executive of the Hong Kong Special Administrative Region),"CJ" (the Chief Justice of the Court of Final Appeal), "CS" (the Chief Secretary for Administration), "FS" (the Financial Secretary), "SJ" (the Secretary for Justice", "1" (the Commissioner of Police).

13 Parties on the March

13.1 An member in command of a party on the march is to pay compliments by giving the command:

"EYES – RIGHT / LEFT"

at the same time saluting with his right hand. When a party passes an armed sentry, compliments are to be paid as stated above, but if the sentry is unarmed, no compliments are to be paid.

14 Cenotaph

14.1 Members are to salute the Cenotaph in Central to pay tribute to the fallen soldiers of the two world wars.

15 Proper Forms of Address

15.1 Officers are to address a superior as **"SIR/MA'AM"**. Officers should address a subordinate officer by his/her full rank title, followed by the surname e.g. **"SQUADRON LEADER CHAN"**, **"FLIGHT LIEUTEANT LEE"**. Alternatively, Flying Officers and Pilot Officers may be addressed by their superiors as **"MR/MS [SURNAME]"**.

15.2 Sergeant Instructors, Instructors, Officer Cadets/Officer Trainees and cadet members are to address a Warrant Officer as **"SIR/MA'AM"**. The same courtesy is applied to officers. An Officer is to address a Warrant Officer as **"WARRANT OFFICER"**, or **"MR/MS [SURNAME]"**

15.3 A Sergeant Instructor is addressed as **"SERGEANT"**.

15.4 An Instructor is addressed as **"INSTRUCTOR"**.

15.5 An Officer Cadet or Officer Trainee is addressed as **"MR"** or **"MS"**, followed by his/her surname

15.6 A Recruit Instructor is addressed as **"RECRUIT INSTRUCTOR"**.

15.7 A Cadet Warrant Officer is addressed as **"WARRANT OFFICER"**.

15.8 A Cadet Flight Sergeant is addressed as **"FLIGHT SERGEANT"**.

15.9 A Cadet Sergeant is addressed as **"SERGEANT"**.

15.10 A Cadet Corporal is addressed as **"CORPORAL"**.

15.11 A cadet member who is put in charge of a team but who not a Cadet NCO is addressed as **"LEADER".**

15.12 A cadet member who otherwise does not fall under para 15.7 to 15.11 is addressed as **"CADET"**.

Scenarios for Video Clips

Scenario	Description	Action Taken
1. Cadet Joins a Squad	● Cadet reports to the Commander of a Squad and joins the Squad.	1. Cadet stands in the position of Attention three paces in front of the Commander, either on the left or right of the Squad, and says "***Commander's Rank***, ***Rank Name*** requests permission to join the team, ***Commander's Rank***". 2. Commander says "Permission granted". 3. Cadet responses "Thank you ***Commander's Rank***", falls out and marches to the left side of the Squad. 4. Cadets should march to the rear of the rank and halt, turn to the left and step one pace forward when joining the Squad.
2. Cadet Falls Out from a Squad	● Cadet falls out from the Squad upon receipt of order from superior.	1. Cadet calls out "Sir/Ma'am/Rank/Leader", stands in the position of Attention, steps one pace backward, turns to the right and marches out of the Squad.
3. Warrant Officer Gives a Briefing to NCOs at the Parade Ground	● Warrant Officer assembles all NCOs at the Parade Ground. ● NCOs report immediately and goes back to their position after briefing.	1. Warrant Officer calls out "All NCOs over here". 2. All NCOs on the Parade Ground response "Yes Sir/Ma'am", march in quick time / double time to the location, stand in the position of Attention in front of the Warrant Officer and form up a semi-circle facing the Warrant Officer with the most senior NCO standing on the right. 3. Once formed up, the most senior NCO on the right steps one pace forward and says "Sir/Ma'am, NCOs reporting as ordered, Sir/Ma'am". 4. Warrant Officer says "At Ease" and gives the briefing. 5. After the briefing, NCOs stand in the position of Attention, turn about and march to their original position.

Scenario	Description	Action Taken
4. A Team of Cadets March Past an Officer	● A team of cadets, forming up two-by-two and being leaded by a NCO, march past an Officer, who stands on the left of the team, when moving from point A to B.	1. The NCO calls out "Squad, By the Left, Eyes – Left" and the squad, except the left marker, should turn their heads sharply to the left when the team is about five paces from the Officer. At the same time the NCO should make a Left Salute and greets the Officer "Good Morning/ Afternoon/ Evening, Sir/Ma'am". 2. The Officer returns the salute accordingly. 3. The NCO then calls out "Squad, Eyes - Front" and the squad should turn their heads sharply to the front when the last person of the team is about five paces away from the Officer. At the same time the NCO should lower the right arm and resume marching movement
5. Cadets Enter a Room with Officer staying inside	● Officer stays in a room. ● Cadets request permission to enter the room.	1. Cadets line up two-by-two outside the room, standing in the position of Attention. 2. Leader opens the door (if necessary), stands next to the door in the position of Attention outside the room facing inside, knocks the door three times, and calls out "Sir/Ma'am, cadets request permission to enter the room, Sir/Ma'am". 3. Officer says "Permission granted". 4. Leader responses "Thank you, Sir/Ma'am". 5. All cadets fall out and enter the room.
6. Officer Enters a Room with Cadets staying inside	● Cadets stay in a room (no matter sitting or standing up). ● Officer enters the room.	1. Cadet who first sees the Officer (should be the Leader of the team under normal situation) call out "Cadets Attention / Sit Attention". 2. Officer enters the room and says "At Ease".
7. Cadets Get Ready for Presentation of Lecture given by Officer	● Cadets enter the lecture room and wait for approaching of Officer.	3. Cadets enter the room and remain at the seats. 4. Leader calls out "Cadets Attention / Sit Attention". 5. Leader goes outside the room, stands in the position of Attention two paces in front of the Officer and says "Sir/Ma'am, cadets reporting as ordered, Sir/Ma'am." 6. Officer enters the room and says "At Ease".

Scenario	Description	Action Taken
8. Cadets Leave a Room with Officer staying inside (Small Scale)	● Officer stays in a room. ● Cadets request permission to leave the room. ● The space of the room is large enough for cadets to line up.	1. Cadets line up two-by-two in front of the door, standing in the position of Attention. 2. Leader opens the door (if necessary), stands next to the door in the position of Attention facing inside, knocks the door three times and calls out "Sir/Ma'am, cadets request permission to leave the room, Sir/Ma'am". 3. Officer says "Permission granted". 4. Leader responses "Thank you, Sir/Ma'am". 5. All cadets fall out and leave the room.
9. Cadets Leave a Room with Officer staying inside (Large Scale)	● Officer stays in a room. ● Cadets request permission to leave the room. ● The space of the room is NOT large enough for cadets to line up.	1. Cadets stand in the position of Attention at their seat. 2. Leader opens the door (if necessary), stands next to the door in the position of Attention facing outside, knocks the door three times and calls out "Sir/Ma'am, cadets request permission to leave the room, Sir/Ma'am". 3. Officer says "Permission granted". 4. Leader responses "Thank you, Sir/Ma'am". 5. All cadets fall out and leave the room.

3

Airmanship

HONG KONG AIR CADET CORPS 香港航空青年團

TRAINING GROUP 訓 練 部

Course Description 課 程 綱 要

Course Information

Category	AE
Course Code	ACC03
Course Name	Airmanship
Classification	First Class Cadet
Suggested Duration	3 sessions x 2 hours = 6 hours
Teaching Method	Lecture
Assessment Method	Written Exam

Aims & Objectives

1.1 Aims

This course provides a brief introduction of airmanship and let the members know how to fly safely and efficiently in the crowded skies

1.2 Objectives

On completion of this course, cadets will be able to

1.2.1 Understand the importance of airmanship
1.2.2 Obtain basic knowledge in aviation
1.2.3 Make use of airmanship in various situations

Syllabus

2.1 Understanding Airmanship
2.1.1 Definition of Airmanship
2.1.2 Importance of Airmanship
2.1.3 Airmanship Model
2.2 Basic Knowledge in Aviation
2.2.1 Runway and Taxiway
2.2.2 Airfield, Aerodrome and Airport
2.2.3 Airport Facility
2.2.4 Marshalling Signal

2.2.5 Flight Instrument
2.3 Airmanship in Flight Operation
2.3.1 General Information
2.3.2 Airmanship Before Flight
2.3.3 Airmanship in the Air
2.3.4 Airmanship After Flight
2.3.5 Airmanship for Approaching a Helicopter

Teaching Method

Lectures and case simulation will be us ed to emphasize airmanship model and application of airmanship.

Demonstration of marshalling signal and flight instruments would be recommended for better understanding.

Assessment

Written exam will be conducted to assess cadets' ability to indicate the definition and application of airmanship.

Examination Hours	1 hours
Written Exam	100%
Practical Assessment	0%
Coursework (Project)	0%

Suggested Readings

NIL

1. What is Airmanship?

Airmanship is something very close to a `Road-Sense' in the air to help a pilot to fly safely. "Do the right thing at the right moment" can be regarded as a simplified meaning of airmanship. Behind this phase, there are many things that a pilot must think about if he is to fly safely. A combination of knowledge, skills, situation awareness, flight discipline, and to exercising excellent decision makings is the key for the pilot to fly safely and efficiently in the crowded skies.

The Importance of Airmanship

You will no doubt have heard the statistic that 80 percent of all aircraft accidents have 'human factors' as one of their main causes. As aircraft have become increasingly sophisticated and reliable, accidents have become less likely to result from mechanical failure and more likely to be caused by human error. If the pilots do not has a good airmanship, accidents are very likely to be happened.

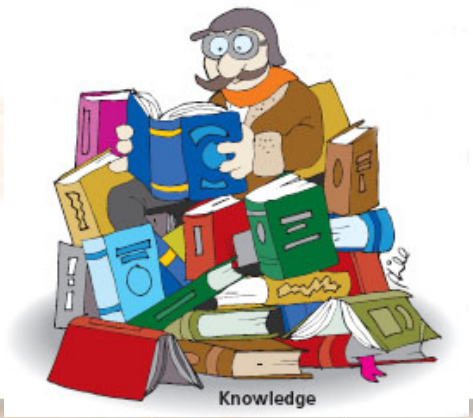
Airmanship Model

Airmanship is primarily concerned with decision-making – making the right decision at the right time. Poor airmanship is often illustrated by poor decision-making, or even a failure to make any decisions at all.

Situational awareness


Situational Awareness

Situational awareness is prerequisite for good decisions. You can't make decisions unless you know you have to make one! Recognizing that something is happening, however, is not enough unless you know the significance of what has been observed. For example, suppose you notice an aircraft that appears stationary in the wind screen. What does this mean? Either that aircraft is flying directly away from you, or it is on a collision course! How do you know?


Knowledge

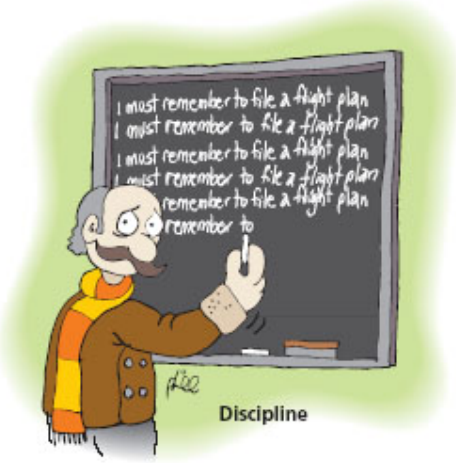
This is a relatively simple situation that we can normally appreciate intuitively, or as a result of our experiences in other aspects of our life. We have learnt through experience and knowledge that lack of relative motion means converging paths. There are, however, a lot of situations that are unique to the aviation environment that we have to know about to be able to correctly determine the significance of what we see.

Knowledge and skills

That is a long list of t hings the pilot has to know about to do the job ef fectively and safely . It t akes time and a lot of experience to gain that knowled ge. Something else that t akes time to acqui re is the skill required to do what y ou have to. W e need to distingu ish between skills, wh ich can be de fined as things you have learnt how to do, and proficiency, which is how well you can do them. Your proficiency depe nds upon how well y ou were t aught the skill in the first place, how many times you have practi ced it, and how recently you have done so. The better you were taught the skill, and the more often you have practiced it, then the greater the time t hat can elap se without you using the skill before your proficiency drops to an unacceptable level.

Self-discipline

One last factor that we need t o consider is discipline. This can be defined as the attitude of the pilot towards rules, personal or organizational limits, and the extent to which the pilot will go to, to fly as accurately and correctly as possible. A disciplined pilot will turn back when preset personal minimums are reached. Disciplined pilot s never t ake short cut s when planning flight s, and they don't leave things to chance.



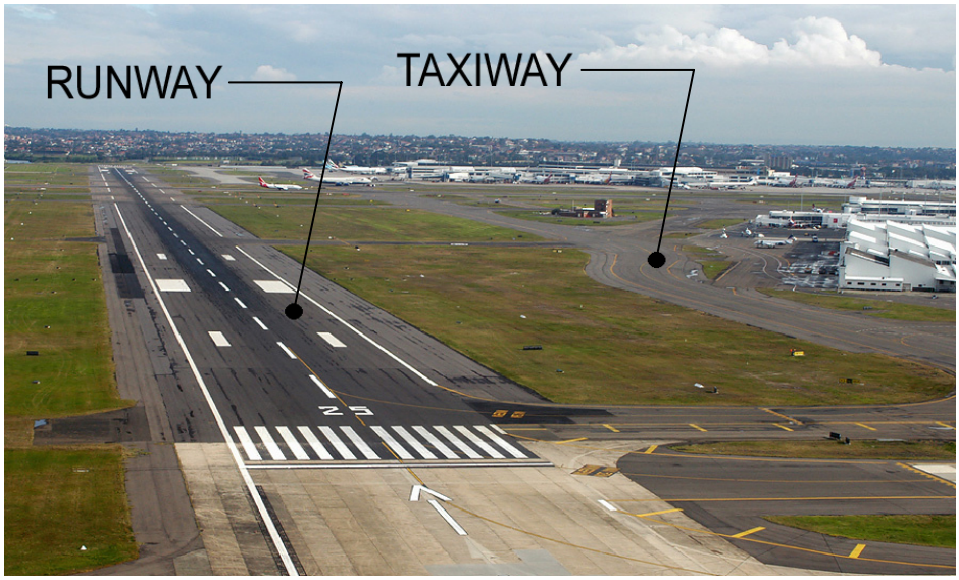
To summarize the airmanship model,

• **Airmanship** is all about making good decisions, which requires a high degree of
  - **Situational Awareness** to detect what is going on, combined with the
  - **Knowledge** to determine the significance of what you observe, the
  - **Skills** to do the things you have to do, and the
  - **Discipline** to do the right thing.

2. Basic Knowledge in Aviation

Runway and Taxiway

Runway (Rwy)	*Taxiway (Twy)*
A special prepared surface for aircrafts perform take-off and landing.	A special prepared surface for aircrafts ground movements and as an access to and from the runway.



Runway markings

Threshold	A series of white strip like 'piano key s' indicating the beginning of the runway that is available for landing.
Centerline	A white broken line at the centre of the runway.
Edge Line	A white solid line delineates the edges of the full-strength pavement for sealed or concrete runways.
Runway Number	A runway designator showing the runway direction rounded off to the nearest 10^{o}.

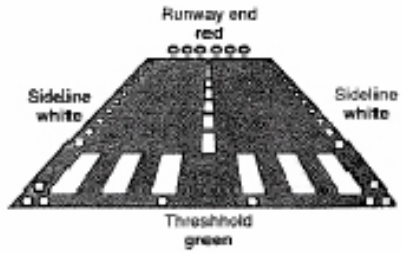
Taxiway markings

Centerline A yellow solid line at the middle of the taxiway. Aircraft should maintain at the centerline dur ing t axi to ensure wing-tip clearance.

Edge Line A double yellow solid line at eac h side of the runway to define the boundary of the t axiway. It provides paved area to prevent blast and water erosion to the taxiway.

Holding point A double solid line and double dash line in yellow across the width of the t axiway indicated that the aircraf t should request clearance before p assing though th is point. The continuous lines are on the side from which an airplane will appr oach a runway when t axiing, and if inst ructed to hold short of the runway or if not cleared onto the runway, then you s hould stop with no part of the aircraft extending beyond the holdi ng point.

Runway lighting



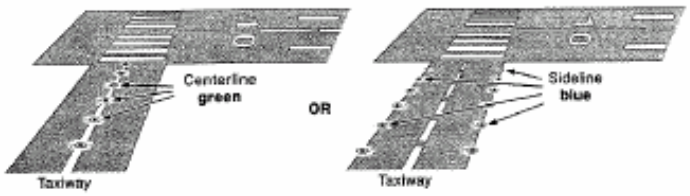
Edge lights White, and outline the edges of runways during periods of darkness or restricted visibility.

End lights Green at the near end to aircraft on approach, and red to aircraf ts stopping at the far end.

Taxiway lighting

Edge lights Blue

Centreline Green



Light signal

If you experience radio communications failure, Air Traffic Controllers may use light signals originating in the control tower to communicate basic commands.

Light Signal	Aircraft on the Ground	Aircraft in flight
Steady Green	Cleared for takeoff	Cleared to land
Flashing Green	Cleared to taxi	Return for immediate landing
Steady Red	Stop	Give way to other aircraft and continue circling
Flashing Red	Taxi Clear of the runway in use	Aerodrome unsafe- do not land
Flashing white	return to starting point on airport	Not applicable
Alternation Red/Green	Exercise Extreme Caution	Exercise Extreme Caution

Airfield, Aerodrome, and Airport

Airfield - Area for take-off and landing excluding building and installation. It can be a flattened grass or soil paved runway without any facilities provided.

Aerodrome - Area for take-off and landing including building and installation such as aviation club, re-fuelling facility.

Airport - An aerodrome handles international air traf fic inclu ding custom, immigration and other passenger and baggage handling facilities.

Airport Facility

Control Tower A building for air traf fic c ontrollers to ensure safe operations of aircraf ts. Towers handle all t akeoff, landing, and ground traffic.

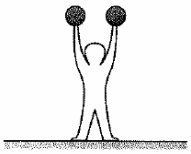
Wind sock A vit al indicator to th e pilot of wind strength and direction. When the sock is horizont al, the wind speed is approximately 20-25 knots.

Apron — Adjoins the terminal and aircraf t parking and servicing bays for aircraft ground movement and parking.

Terminal — A building cont aining immigration, customs, rest aurants, shops, and other facilitate for international flights

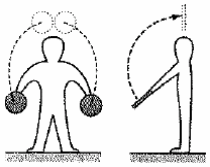
Re-fuelling Station — An option al facility in an aerodr ome for a stop-hop-flight t o re-fuelling. When refueling, t he airplane must be positioned well away from other airpl anes and from buildings. No smoking is allowed and p assenger must be kept well clear . The airplane must be grounded before refueling to prevent the possibility of a sp ark of st atic electricity igniting t he fuel vapour.

Marshalling signal



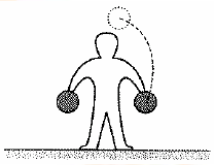
This bay

Arms placed above the head in a vertical position



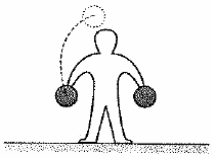
Move ahead

Arms repeatedly moved upward and backwards, beckoning onward.



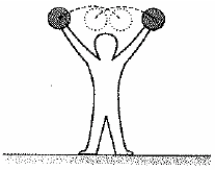
Turn to port

Right arm down, left arm repeatedly moved upward and backward. The speed of arm movement indicated the rate of turn.



Turn to starboard

Left arm down, right arm repeatedly moved upward and backward. The speed of arm movement indicated the rate of turn.

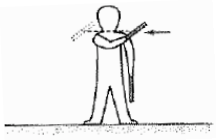


Stop

Arms repeatedly crossed above the head. The speed of arm movement indicates the urgency of the stop.

Start engine

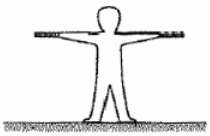
A circular motion of the right hand at head level, with the left arm pointing to the appropriate engine.



Cut engine

Either arm and hand place level with the chest, then moved laterally with the palm facing downwards

Helicopter operations only

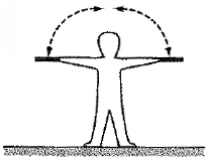


Hover

Arms placed horizontally sideways.

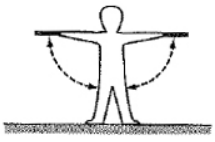
Land

Arms placed down and crossed in front of the body.



Move upwards

Arms placed horizontally sideways with the palms up beckoning upwards. The speed of the arm movement indicates the rate of ascent.



Move downwards

Arms placed horizontally sideways with the palms down beckoning downwards. The speed of the arm movement indicates the rate of descent.

Move horizontally

Appropriate arm placed horizontally sideways, then the other arm repeating moved in front of the body to that side, in the direction of the movement, to the left or right side.

Flight Instrument

Airspeed Indicator – It provides information about the speed of the aircraft relative to the air in knots.

Attitude Indicator – It gives the positioning information of the aircraft in pitch and roll against the horizon.

Altimeter – It provides the height information to the specific datum, e.g. mean sea level, airport ground level, in thousand of feet.

Vertical Speed indicator – It provides the climbing or descending speed of the aircraft in thousand of feet per minutes.

Heading Indicator – It provides the directional information to the pilot.

Turn Coordinator – It provides information for the pilot to govern the rate and the balance of a turn.

3. Airmanship in flight operation

General

Checks and Use of checklist

Checklists are a critical performance aid used by pilots to assure that the aircraft is properly configured for the next phase of flight. Checklists are also used to guide pilots in responding to abnormal situations.

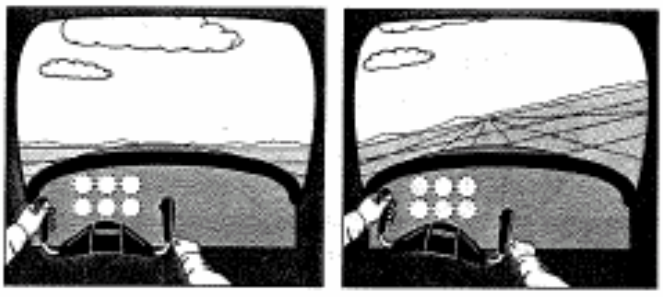
Despite the fact that a pilot has already carried out an extensive list of checks, one he is airborne it is important that certain `vital' checks are carried out at regular intervals. Examples are:

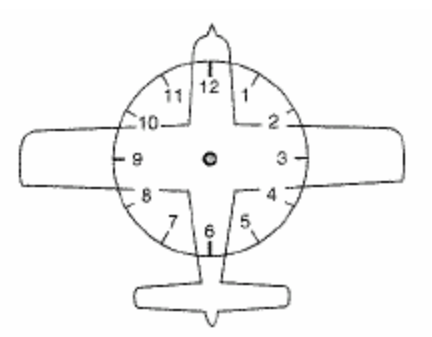
- Fuel - content s sufficient to continue flight, is consumption correct of engine power setting, is fuel tank balance over?
- Oxygen - content s sufficient to continue flight, are flow indicator showing positive flow?
- Engine - RMP setting, are temperatures and oil pressures correct for RMP?
- Altimeters - are correct pressure settings selected?
- Instruments - are all instrument s erect (they can topple during aerobatics), are compasses synchronized?

The normal interval between checks is about 15 minutes, but they do vary according to phase of flight. For example, during a climb the engine is at full power, so a more frequent check of engine limits is required. During a descent, especially through cloud, altimeter and instrument checks become very important, and are checked more frequently.

Lookout

Maintain a good lookout is essential in any phases of flight operation. 'Visual' flying requires that the pilot maintains a high visual awareness of the environment out side the cockpit, to relate the attitude of the airplane to the natural horizon, to look out for other aircraft, to check passage over the ground and to remain clear of cloud.





The position of other airplanes in relation to your own is best described by using the clock code method, based on a horizontal clock face aligned with the air plane's heading. An airplane ahead of you, but higher, would be described as '12 o'clock high', while one slightly behind and below you on the right-hand side would be at '4 o'clock low'.

Airmanship before flight

Pre-flight

A pre-flight inspection is a very important phase in the flight operation. All controls and equipment shall be inspected before the beginning of the flight to ensure that the plane is safe to fly. The map and weather shall be studied carefully and work out a planned route.

Taxi

Although taxiways are not as crowded as roads, pilots must keep a very good look-out for obstructions such as other aircraft, workmen and station vehicles. The aircraft brakes should be tested as soon as possible after starting to taxi, and the taxi speed should be keep low. Then the pilot will stop at the holding position and completes his `vital checks' before take-off. The pilot should have a good view of the runway, and the final approach path.

Takeoff

The pilot then calls the control tower for permission to take-off. When this is given and he makes sure that the runway and its approach are clear of other aircrafts, his aircraft is taxied forward and lined up with the centre line of the runway. After a final check, the brakes are released, full power is applied and the aircraft starts its take-off run.

Airmanship in the air

Position check

It is important that a pilot always keeps a check on his position to prevent him getting lost. It is for this purpose that he carries maps for navigation. A good sense of location is also important in case a pilot has to divert to another airfield because of bad weather at his base. For example, if he had been airborne for half an hour in a fighter with an endurance of only one hour, he has only 30 minutes to fix his position and decide which airfield he has enough fuel to divert to, taking into consideration their weather.

Airmanship after flight

Post-flight

Once the pilot has landed the aircraft, he taxies off the end of the runway onto the taxiway. He then stops and completes his after landing checks, including such items as raising flaps, turning off necessary navigation equipment, and checking brake pressures.

Once the aircraft is safe, the engine is shut down and the wheels are choked. The pilot completes the log, entering details of the flight duration, maneuvers performed, and any unserviceable items.

Airmanship for approaching a helicopter

When approaching a powered helicopter on the ground, the following guidelines must be followed:

a. Never approach the helicopter when its rotor blades are turning unless the pilot gives signal to do so.

b. Always approach the helicopter from the front, generally in the direction at ‘2 o’clock’ when approaching from the right or at ‘10 o’clock’ when approaching from the left.

c. At no time is anyone permitted near the tail of the helicopter, that is behind the aft semi-circle between the ‘3 o’clock’ and ‘9 o’clock’.

d. No loose object should be wear when approaching the helicopter.

e. No running is permitted within 50 feet of the helicopter.

4

Basic Radio Communication

HONG KONG AIR CADET CORPS 香港航空青年團

TRAINING GROUP 訓 練 部

Course Description 課 程 綱 要

Course Information

Category	GST
Course Code	ACC04
Course Name	Basic Radio Communication
Classification	First Class Cadet
Suggested Duration	3 sessions x 2 hours = 6 hours
Teaching Method	Lecture + Practical exercise
Assessment Method	Practical assessment

Aims & Objectives

1.1 Aims

This course provides a brief in troduction to radio communication, its operation procedures and applications.

1.2 Objectives

On completion of this course, cadets will be able to

1.2.1 Identify the use of radio communication
1.2.2 Understand the importance of radio discipline
1.2.3 Operate radio stations in an appropriate manner
1.2.4 Understand the use of some common prowords
1.2.5 Encrypt and decrypt simple message in radio communication

Syllabus

2.1 Underst anding Radio Communication

2.1.1 Background
2.1.2 Principle of Radio Communication
2.1.3 Characteristics of Radio
2.1.2 Applications of Radio
2.1.3 Call Signs & Phonetic Alphabets
2.1.4 Prowords

2.2 Voice Procedure
- 2.2.1 Radio Discipline
- 2.2.2 Offering Messages
- 2.2.3 Call and Answer
- 2.2.4 Radio check / Time check
- 2.2.5 Dialogue Exercise

2.3 Cryptography (supplementary)
- 2.3.1 Symmetric and Asymmetric cryptography
- 2.3.2 Caesar transformation
- 2.3.3 Vegenere transformation

Teaching Method

Lectures and case simulation will be used to emphasize theories and application of radio communication.

Cadets will have practical experience according to scenario assigned by instructor to practice correct use of radio with instructor as control station to monitor the communication.

Assessment

Practical assessment will be conducted in terms of case studies, for example, crowd control, expedition activity, treasure hunting or military operation.

An effective presentation of radio communication will award a pass for this course.

Examination Hours	2 hours
Exam	0%
Practical Assessment	100%
Coursework (Project)	0%

Suggested Readings

NIL

Understanding Radio Communication

1.1 Background

In the early period of human aviation history, the method of communication with the people on aircraft was by shouting and displaying large visual signals on the ground. However, this seems impractical as aircraft flew higher and higher.

During WWII most radio transmissions were made on low frequency wave-length bands. These frequencies, which are capable of long-range transmission, are generally somewhat unclear and will pick up static, lightning, and other interference. Therefore, it was difficult to understand many of the messages. Late in the war, high frequency with greater clarity was introduced. However, the problems of weak transmission from long distance and poor enunciation by many pilots made it imperative that this system be continued.

1.2 Principle of Radio Communication

While sound works well over short distances, for long-range communications an alternative method must be used – radio. A radio communications system consists of a transmitter (Tx), to send the message and a receiver (Rx) to receive the reply. The link between the Tx and Rx is this time not sound energy, but electromagnetic (em) energy, (radio waves).

1.3 Characteristics of Radio

The followings are the features of radio, which determines the special operations and discipline of using it.

a. Specific channel of radio stations. A radio can tone to different channels. Therefore radio stations can communicate ONLY when their channels are match.

b. The Tx and Rx are using the same device. Therefore, when one station is speaking, other radio stations can only listen to the message but cannot speak.

c. Only a specified range of frequencies can be used for the general public. Therefore, sometimes some channels will have more than one group of people communicating.

1.4 Application of Radio

a. *Community Service*. When organizing a public event, which requires a communication network, a radio net is prefered since a single mes sage can pass through all stations.

b. *Expedition Activities*. Most outdoor activities depar t in teams, they need to communicate with a radio network to report their position where mobile phone network may not cover.

c. *Military Operations*.

1.5 Call Signs & Phonetic Alphabets

The Control and each Station would have th eir unique Call Sign in the Radio Net to recognize.

a. Call Sign "Ø" is usually reserved for Control.

b. Other stations are arranged in Alphabetical-Numerical order

Exercise 1:

Arrange the priority of the following call signs.

G11, Ø, K32A, R2Ø, ØA, K31A, B14B, G12

Letters pronounced on the radio can be dif ficult to underst and due to the similarity of the sound of many letters, one good example is C, D, E, P , T. To avoid confusion, the International Civil Aviation Organization (ICAO) had adopted a system of words, one representing each letter of the alphabet.

The phonetic alphabet came into use during World War II when flying increas ed at so a great rate. The Royal Air Fo rce began using alphabets to identify aircrafts.

Letters	Phonetic Alphabets
A	Alpha
B	Bravo
C	Charlie
D	Delta
E	Echo
F	Foxtrot
G	Golf
H	Hotel
I	India
J	Juliet
K	Kilo
L	Limo
M	Mike

Letters	Phonetic Alphabets
N	November
O	Oscar
P	Papa
Q	Quebec
R	Romeo
S	Sierra
T	Tango
U	Uniform
V	Victor
W	Whiskey
X	X-ray
Y	Yankee
Z	Zulu

Numbers are used in almost every radi o call. To avoid misunderst andings, the pronunciation of some digits differs from that used in normal conversation.

Number	Pronunciation
Ø	Zero
1	One
2	Two
3	Tree
4	Four
5	Fife

6	Six
7	Seven
8	Eight
9	Niner
100	Hundred
1000	Thousand
(.)	Decimal

Except for whole hundreds and thous ands, and except when giving Grid Reference, figures must be given in p airs of single digit. When a number has a decimal point in it, say the word DECIMA L at the propose place. Remember to say the word FIGURES before giving out any figures unless it is obvious to the receiving party.

Exercise 2:

Spell the following figures in an appropriate way.

a. 121212 d. 1200

b. 23232 e. 12000

c. 12.34 f. KK 123 456

1.6 Prowords

Prowords means Procedure Words. It is a word or a phrase that can easily be pronounced and understood. It represents a complete sentence of specific meaning.

ALL STATIONS	Call all Stations in the Radio Net
CORRECT	Indicate message all correct
CORRECTION	Correct mistakes in current message.
DIFFICULT	Communication difficult, need to move to a different point or use a different measure
FIGURES	Sending Figures
GO AHEAD	Indicate other party to speak, same as SEND
GRID REFERENCE	Sending Grid Reference
HULLO	First word said in initial call to get attention
I SAY AGAIN	I say again the content of the message you request
I SPELL	I use phonetic alphabets to spell a word or a phase
MAYDAY	International distress signal
MESSAGE	Indicate message is to be taken down in writing by the receiving Station
OK	Indicate signal is good and can communicate
OUT	Finished sending message, no need to answer
OUT TO YOU	Finished contact station A, now contact station B
OVER	Finished sending message, waiting for answer
RADIO CHECK	How well do you read the signals send by me
ROGER	Message received and will properly deal with it
SAY AGAIN	Request message send again by the sender Station
SEND	Indicate other party to speak, same as GO AHEAD
THIS IS	Use in initial call to indicate identity of sender Station
TIME CHECK	Order all Stations to synchronize time when establishing communication. Use SEND TIME in all subsequent time synchronization
WAIT OUT	Wait to answer, OUT first
WILCO	Message received and will carry out right away

2. Voice Procedure

2.1 Radio Discipline

Radio Discipline is essential to the smooth running of a Radio Net. The operator at Control (regardless of rank) is responsible for enforcing strict Radio Discipline.

Good Radio Discipline includes:

a. Proper Voice Procedure

b. Establish and Terminate Communication

c. Use proper radio channels or frequency

d. Ensure all Stations operate properly

e. Do not answer if the word “OVER” is not heard; do not jam in if the word “OUT” is not heard.

f. Release pressel promptly after call to free the channel to others to talk

g. Listen before transmitting, to prevent interference

Radio communication is different from everyday conversation. Courteous words such as “please”, “thanks”, “you’re welcome”, etc. are not required. However, the best Radio Courtesy is best observed if the user can keep the message brief, the meaning clear, the deliver accurate and without delay.

As mentioned in chapter 1.3, since only a narrow range of frequencies are released to public for radio communication, it is common that several groups of people using the same channel. To avoid any inconvenience to other users, it is appropriate to:

a. Keep radio silent, to keep away from disturbance to other parties

b. Avoid unnecessary transmission (prevent other parties from listening to it)

c. Keep transmission short (break a sentence into phrases)

2.2 Offering Messages

There are several things to pay attention to when offering message.

a. NEVER press and hold the T ALK button w hile trying to think of what is to be said. This not only runs down your bat tery, it also interferes with other parties' communications and makes the Radio Net less efficient.

b. Your MUST first decide what you are going to speak BEFORE press and hold the T ALK button. Once you finished offering your message (i.e. finished saying the final word of your message) , you should re lease the TALK button IMMEDIATELY.

c. When of fering a message, you s hould speak REASONABL Y SLOW in a CLEAR voice. The speed of the message of fered depends on whether the receiving party is required to make a written record. If that is the case, make necessary to the speed of the message. Your should NEVER murmur as you speak.

d. When offering a message, you should p ause wisely to let the receiving p arty digest the message, especially when a wri tten record on the receiving end is required. Y our p auses should not af fect the meaning of the message or mislead the receiving party.

e. When making Initial Call, you should info rm the receiving S tation(s) the type of message you are going to of fer (V erbal report, W ritten Report, Order , SITREP) so that the receiving S tation(s) can get ready to receive your message to avoid wasting time.

e.g. (i) Verbal Report: "Hullo All Stations. This is Ø. OVER."

(ii) Written Report: "Hullo All Stations. This is Ø. Message, OVER."

(iii) Order: "Hullo All Stations. This is Ø. Order, OVER."

etc…

2.3 Call and Answer

2.3.1 Initial Call

When Control or a Station calls other Stations or Control, a specific format is used to alert the receiving party to receive the message and inform the receiving party the type of message offers.

e.g. (i) "HULLO {Call Sign of receiving party}"
"This is {Own Call Sign}
(Message preview)
(Ending)

2.3.2 Answer

An Answer is given after the Initial Call. Own Call Sign must be given before offering any messages.

e.g. {Own Call Sign} + (Content) + (Ending)

2.3.3 Content

e.g. (Message content) + "OK"/"ROGER"/"WILCO" etc.

2.3.4 Ending

e.g. "OVER"/"OUT" etc.

2.3.5 Order of Answering

Answering is to be made in sequence starting from "0" and then "01" to "09", "A" to "Z" counting from the first digit of the Call Sign. If the first digit of the Call Sign is the same, then compare the next digit.

2.3.6 5-Second Rule

When the preceding Station in the Order of Answering does not answer, the next Station should first wait for 5 seconds before offering an answer. The Station that missed the turn can only offer an answer when all Stations have finished answering.

2.4 Radio Check / Time Check

2.4.1 Radio Check

Radio Check is essential in order to make sure the Radio Net operates smoothly. When the Radio Net is set up, Control should do a Radio Check immediately. Stations should pay attention to the signals of other Stations. When Radio Check is completed, Control will report which Station is not heard. At that time, any Stations that are able to communicate with this Station should report to Control.

e.g. Ø: Hullo All Stations, This is Ø. Radio Check, Over.
KØ: KØ. OK Over.
K6: K6. Difficult Over.
N1: N1. OK Over.
Z9: Z9. OK Over.
Ø: Ø. K2 Nothing Heard. Out.
KØ: Hullo K2. This is KØ. Radio Check, Over..
K2: K2. OK Over.
KØ: KØ. Roger, Out to you. Hullo Ø. This is KØ. Over.
Ø: Ø. Send, Over
KØ: KØ. Radio Check to K2. OK Over.
Ø: Ø. Roger Out.

2.4.2 Time Check

Time Check is also essential in order to synchronize the time of all Stations. Therefore, a Time Check should be carried out shortly after the Radio Check.

Official Time Check

Official Time Check is carried out once when establishing communication. An Official Time Check should be carried out when the time is at XXX0 hrs or at XXX5 hrs.

e.g. Ø: Hullo All Stations, This is Ø. Time Check, Over.
KØ: KØ. Send Over.
K6: K6. Send Over.
N1: N1. Send Over.
Z9: Z9. Send Over.
Ø: Ø. Time Check at 1800 HRS… 15 SEC… 10 SEC…
5. 4. 3. 2. 1. Time 1800 HRS. Over
KØ: KØ. Roger Out.
K6: K6. Roger Out.
N1: N1. Roger Out.
Z9: Z9. Roger Out.

2.5 Dialogue Exercises

2.5.1 Community Service

Scenario: The first aid post (ØA) received a cadet report sick in an event and request assistance and order from command post.

Ø = Command Post
ØA = First-aid Post
1Ø = Entrance A

ØA: Hullo Ø, this is ØA.
Ø: Ø, Send.
ØA: ØA. One cadet report sick at First-aid Post, Over.
Ø: Ø. Will contact ambulance to pick up at Entrance A, Out to you. Hull o 1Ø, this is Ø. Clear entrance for ambulance to arrive, Over.
1Ø: 1Ø, Roger Out.
ØA: ØA, Roger Out.

Ambulance arrived.

1Ø: Hello Ø, this is 1Ø.
Ø: Ø, Send.
1Ø: 1Ø, Ambulance arrived, Over.
Ø: Ø, Wilco, Out.
Ø: Hullo ØA, this is Ø.
ØA: ØA, Send.
Ø: Ø, Ambulance arrived at Entrance A, send patient with an officer to accompany, Over.
ØA: ØA, Roger, Out.

2.5.2 Expedition

Scenario: Two sections (AØ & B1) went fo r expedition training on separate route. Control station (Ø) requested the sections to meet at the coming check-point for lunch.

Ø: Hullo, All stations, this is Ø. Send Locstat, Over.
AØ: AØ, Locstat Grid Reference KK 458237. Over.
B1: B1, Locstat Grid Reference KK 453 241. Over.
Ø: Ø, B1, Difficult, Say again, Over.
B1: B1, I say again, Locstat Grid Reference KK 453 241. Over.
Ø: Ø, Roger Out to you. Hullo, All stations, this is Ø, Over.
AØ: AØ, Send, Over.
B1: B1, Send, Over,
Ø: Ø, All stati ons gather at Grid Reference KK 460 242, set off at time 1400, Over.
AØ: AØ, Roger Out.
B1: B1, Roger Out.

3 Cryptography (Supplementary)

3.1 Symmetric and Asymmetric Cryptography

When Radio was first introduced, the main purpose is for military operation. To prevent enemies from hacking the channel to get the important military information, messages are always coded by several ways to avoid them to release to rivals.

Symmetric key system is normally used in coding/decoding system. Since the coding key and decoding key is the same, this key should always be kept secret, therefore to be told as the **private-key system** or **one-key system** while the key is called a **secret key**.

Since the coding/decoding speed for symmetric key system is fast, it is appropriate for large data processing while protecting important and sensitive data/information.

On the contrast, asymmetric key system means that the coding key and decoding key are of separate systems. This will cost a lot of calculations for the decoding process and therefore is more commonly used in computer security key systems. In the following section, we will introduce several commonly used symmetric key transformation systems.

3.2 Caesar Key System

Caesar key system comes from the Roman Emperor Caesar. The principle of this key system is to transform them to shift the whole alphabet sequence to a certain backward or forward.

For example,

Let coding function $f(x) = x + 4 \bmod 26$, then coding will be as below:

Original	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
Coded	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D

By this rationale, if $f(x) = x + 5 \bmod 26$, then

Original message: ENEMY LOCSTAT 3 KM EAST. The coded message will be JSJRD QTHXYFY 3 PR JFXT.

3.3 Vegenere Key System

Vegenere key system was developed in 1868 by Lewis Carroll. The communicating parties need a table as follows to transform the original message to coded one, and vice versa. Not only this, both side should have a common key. However, we need to emphasize that the table below is NOT part of the key, that means, even the table is disclosed, it will not affect the security of the coded message.

	E	A	T		E	A	T			E	A	T			E	A	T	E							
Original	A	T	T		A	C		K		3		A	M		N	4	7	E	(Keyword	:	E	A	T)		

	A	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**	**M**	**N**	**O**	**P**	**Q**	**R**	**S**	**T**	**U**	**V**	**W**	**X**	**Y**	**Z**
	K	E	Y		W	O	R	D	K	E		Y	W	O	R	D	K	E	Y	W	O	R	D	K	E	Y		W	O

E	**E**	F	G		H	**I**		J	K		L	M	N	O	P	Q	**R**	S	T	U	V	W	X	Y		Z	A	B	C	D
A	A	B		**C**	D	E		F	G	H	I		J	K	L	M	N	O	P	Q	R	S	**T**	U	V		W	X	Y	Z
T	T	U		V	W	X	Y	Z	A	B		C	**D**	E	**F**	G	H	I	J	K	L	**M**	N	O		P	Q	R		S

Coded: ETMECD 3AF R47I

Figure 2.3.1 Vegenere Key Table

	A	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**	**M**	**N**	**O**	**P**	**Q**	**R**	**S**	**T**	**U**	**V**	**W**	**X**	**Y**	**Z**
	K	E	Y		W	O	R	D	K	E		Y	W	O	R	D	K	E	Y	W	O	R	D	K	E	Y		W	O
A	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**	**M**	**N**	**O**	**P**	**Q**	**R**	**S**	**T**	**U**	**V**	**W**	**X**	**Y**	**Z**
B	B	C		D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V		W	X	Y	Z	A
C	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**	**M**	**N**	**O**	**P**	**Q**	**R**	**S**	**T**	**U**	**V**	**W**	**X**	**Y**	**Z**	**A**	**B**
D	D	E		F	G		H	I		J	K		L	M		N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C
E	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**	**M**	**N**	**O**	**P**	**Q**	**R**	**S**	**T**	**U**	**V**	**W**	**X**	**Y**	**Z**	**A**	**B**	**C**	**D**
F	F	G		H	I		J	K		L	M		N	O		P	Q	R	S	T	U	V	W	X	Y		Z	A	B	C		D	E
G	**G**	**H**	**I**	**J**	**K**	**L**	**M**	**N**	**O**	**P**	**Q**	**R**	**S**	**T**	**U**	**V**	**W**	**X**	**Y**	**Z**	**A**	**B**	**C**	**D**	**E**	**F**
H	H	I		J	K		L	M		N	O		P	Q		R	S	T	U	V	W	X	Y		Z	A		B	C		D	E		F	G
I	**I**	**J**	**K**	**L**	**M**	**N**	**O**	**P**	**Q**	**R**	**S**	**T**	**U**	**V**	**W**	**X**	**Y**	**Z**	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**
J	J	K		L	M		N	O		P	Q		R	S		T	U	V	W	X	Y		Z	A		B	C		D		E	F		G	H	I
K	**K**	**L**	**M**	**N**	**O**	**P**	**Q**	**R**	**S**	**T**	**U**	**V**	**W**	**X**	**Y**	**Z**	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**
L	L	M		N	O		P	Q		R	S		T	U		V	W	X	Y	Z	A		B	C		D		E		F	G		H	I	J	K
M	**M**	**N**	**O**	**P**	**Q**	**R**	**S**	**T**	**U**	**V**	**W**	**X**	**Y**	**Z**	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**
N	N	O		P	Q		R	S		T	U		V	W		X	Y	Z	A	B	C		D	E		F		G		H		I	J	K	L	M
O	**O**	**P**	**Q**	**R**	**S**	**T**	**U**	**V**	**W**	**X**	**Y**	**Z**	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**	**M**	**N**
P	P	Q		R	S		T	U		V	W		X	Y		Z	A	B	C	D	E		F	G		H		I		J	K		L	M	N	O
Q	**Q**	**R**	**S**	**T**	**U**	**V**	**W**	**X**	**Y**	**Z**	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**	**M**	**N**	**O**	**P**
R	R	S		T	U		V	W		X	Y		Z	A		B	C	D	E	F	G		H	I		J		K		L	M		N	O	P	Q
S	**S**	**T**	**U**	**V**	**W**	**X**	**Y**	**Z**	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**	**M**	**N**	**O**	**P**	**Q**	**R**
T	T	U		V	W		X	Y		Z	A		B	C		D	E	F	G	H	I		J	K		L		M		N	O		P	Q	R	S
U	**U**	**V**	**W**	**X**	**Y**	**Z**	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**	**M**	**N**	**O**	**P**	**Q**	**R**	**S**	**T**
V	V	W		X	Y		Z	A		B	C		D	E		F	G	H	I	J	K		L	M		N		O		P	Q		R	S	T	U
W	**W**	**X**	**Y**	**Z**	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**	**M**	**N**	**O**	**P**	**Q**	**R**	**S**	**T**	**U**	**V**
X	X	Y		Z	A		B	C		D	E		F	G		H	I	J	K	L	M		N	O		P		Q		R	S		T	U	V	W
Y	**Y**	**Z**	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**	**M**	**N**	**O**	**P**	**Q**	**R**	**S**	**T**	**U**	**V**	**W**	**X**
Z	Z	A		B	C		D	E		F	G		H	I		J	K	L	M	N	O		P	Q		R		S		T	U		V	W	X	Y

3.4 Dialogue Exercise – Password Check

Original message: JOHN LEE (Key: EAT)
Password: NLAR LXI

Ø: Hullo AØ, this is Ø. Password check, Over.
AØ: AØ, password NLAR LXI, over.
Ø: Ø, granted. Out.
Ø: Hullo All stations, this is Ø. Or der. Key change to GOD at Time 0000. Over.
AØ: AØ, Roger Out.
B2: B2, Roger Out.

After Time 0000,
Ø: Hullo, B2, this is Ø. Password check, Over.
B2: B2, PCKT ZHK, Over. (Should be PCKT ZHJ)
Ø: Ø, Wrong Password.

5

Map Reading 地圖閱讀

HONG KONG AIR CADET CORPS 香港航空青年團

TRAINING GROUP 訓 練 部

Course Description 課 程 綱 要

Course Information

Category	ET
Course Code	ACC05
Course Name	Map Reading 地圖閱讀
Classification	First Class Cadet
Suggested Duration	3 meetings x 2 hours = 6 hours
Teaching Method	Lecture + Field Exercise
Assessment Method	Practical assessment

Aims & Objectives

1.1 目的

讓學員知道如何使用地圖和指南針

1.2 學習目標

完成課程後，學員會認識：

1.2.1 地圖的一般資料、圖例和地形的表示
1.2.2 圖網座標
1.2.3 保養地圖之方法
1.2.4 北的概念
1.2.5 指南針的結構
1.2.6 地圖和指南針之應用

Syllabus

2.1 地圖

2.1.1 地圖的一般資料
2.1.2 比例與距離的量度
2.1.3 圖例
2.1.2 表示高度及地形方法

2.1.3 圖網座標
2.1.4 地圖保養
2.2 指南針
2.2.1 北的認識及磁極誤差
2.2.2 定向式指南針的結構
2.3 應用方式
2.3.1 正置地圖
2.3.2 指南針應用方法
2.3.3 前視方位及後視方位
2.3.4 確定自己位置

Teaching Method

面授和模擬處境練習可讓學員了解地圖和指南針之應用。

在真實場景授課，可讓學員置身其中，親身觀察實物和實習，效果會更佳。

Assessment

透過在野外行山活動進行之考核，評估學員對地圖、指南針應用之認識及運用之純熟程度。

Examination Hours	6-8 hours
Exam	0%
Practical Assessment	100%
Coursework (Project)	0%

Suggested Readings

NIL

(一) 何謂地圖

把實地上之天然或人工景物，以俯視方式記錄在平面上。

(二) 地圖的優點及缺點

優點：

1. 以有限之圖面代表入廣大之地面。
2. 可使人一目了然有關地面上的景物。
3. 顯示景物具方向感。
4. 可顯示地勢高低及地形。
5. 可量度出在實地上目標之距離及地面之面積。

缺點：

1. 顯示之景物缺乏立體感及真實感。
2. 只能量度平面距離。
3. 修改速度不能追上實地景物之變化。

(三) 地圖種類

地形圖、郊遊圖、街道圖、其他(如測量圖、航空圖等)

(四) 地圖邊旁的資料

1. 圖名： 以圖中最著名或最大的地區命名。
2. 編號： 指示出該張地圖在該組地圖的號碼。在1:20,000的比例中，將香港劃分爲十六幅地圖，編號爲一至十六，但涉及中國大陸及大鵰灣的地圖編號(1)較少使用。
3. 組別： 出版機構之類別檔案編號。例如：HM20C, H=HONG, M=MAP, 20=20,000, C=CONTOUR
4. 版次：該地圖的出版年及次數。
5. 簡史：它顯示地圖的印製或修訂日期。
6. 索引：該地圖在本港地區位置。
7. 比例：讓圖與實地之縮小比率
8. 圖例：解釋地圖內符號的意義
9. 圖網座標：統一橫墨卡托方格網的資料
10. 磁極誤差資料

（五）比例與距離的量度

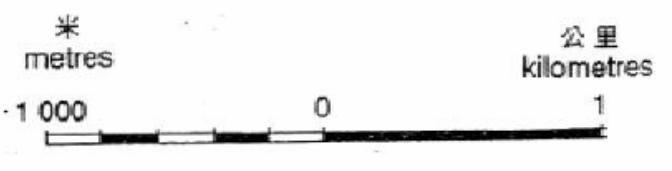
比例是指相同的一點，在實地與地圖上平面距離之關係。

1. 表達比例的方法:

   a.分數式1:20,000 或1/20,000
   b.文字式一比二萬
   c.比例尺

2. 量度距離

將地圖的路分成若干段落，然後利用紙條、線或幼繩，依所定的路線沿步之而量度，然後將量度所得的長度移放在地圖上的比例尺旁，找出其長度，再運算出其實際距離。



(六) 圖例

圖例是將實地上事物，根據其形狀及特徵，利用符號、圖形、顏色、文字等繪劃在地圖上一般而言圖例表達分爲三大類：

1. 人工建設：包括橋樑、道路
2. 天然景物：包括山嶺、植物
3. 界線：包括國界、地區界

(七) 表示高度及地形方法

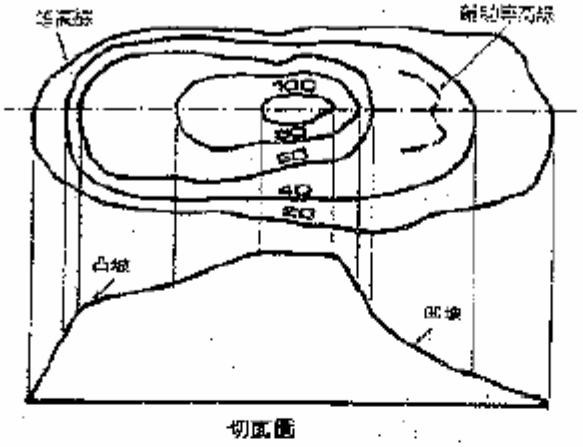
1. 三角網測站： 山頂高度，經精密測量後得出供測量之用，在實地上它是一圓柱石墩。
2. 高程點：山頂高度，只經粗略測量。
3. 等高線：將同等高度的地方連接成一條線，用以表示高度及地形的起伏。
   (HM20C：等高線之垂直間距爲20 米）

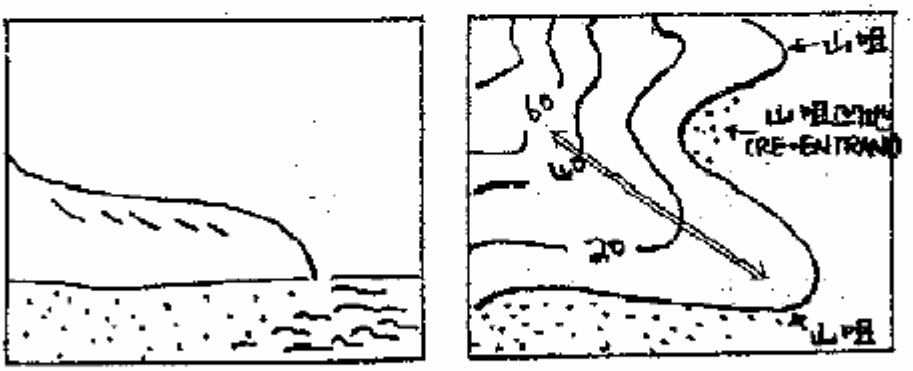
(八) 等高線觀察要點：

1. 等高線相隔愈遠，表示地形愈平坦。
2. 等高線愈接近表示地形愈陡斜。
3. 等高線距離平均，表示坡度平均。
4. 等高是連續不斷，從一點開始，最後也回到該點。不過，在懸崖地方，因坡度太斜，等高線因重疊而看來好像被切斷了而匯集在條線上。

5. 等高線之高處闊，低處窄，這表示那是一個凸坡。
6. 等高線之高處窄，低處闊，這表示那是一個凹坡。
7. 蜿蜒曲折而又相隔甚遠的等高線，表出地形是起狀的。
8. 等高線與等高線之間的距離愈不規則或愈接近，表示地形愈崎嶇或糾峭，反之，表示地形比較平坦。

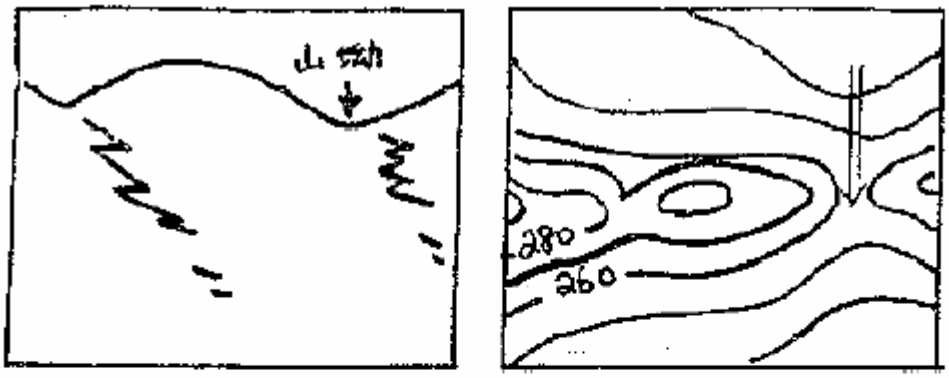
（九）橫切面圖



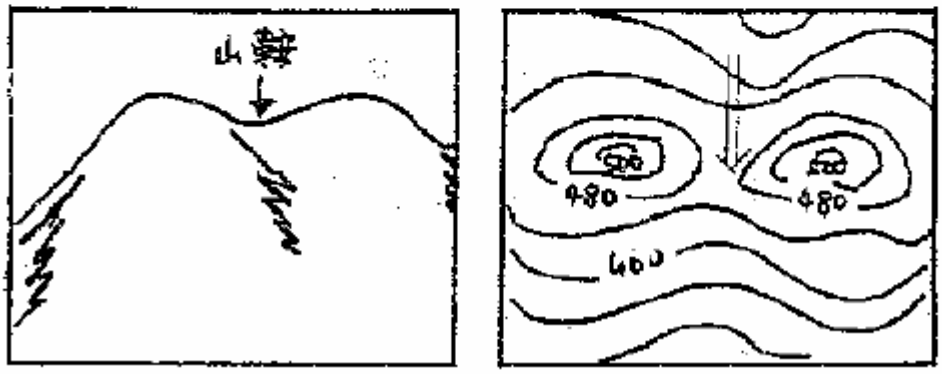


山咀(spur)

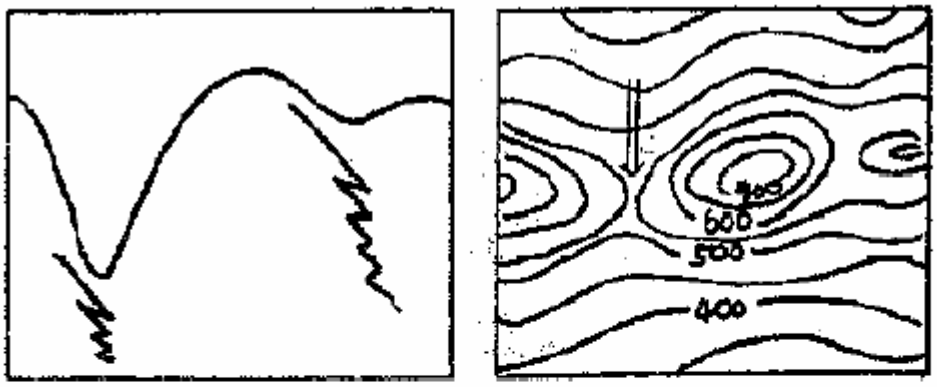
山谷(valley)



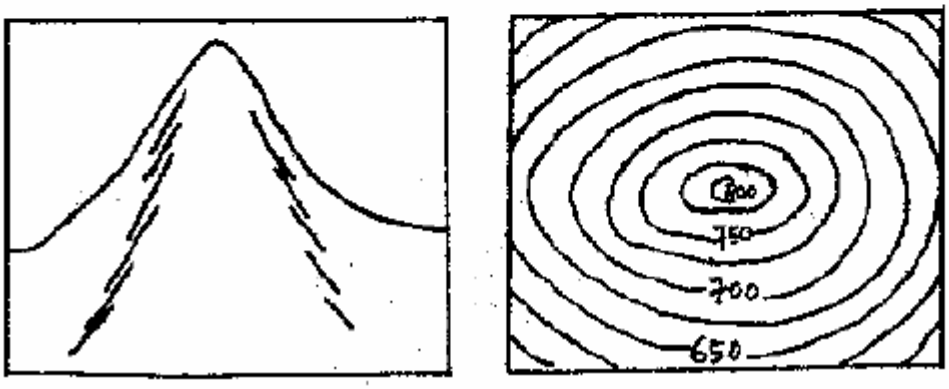
山坳
(col)



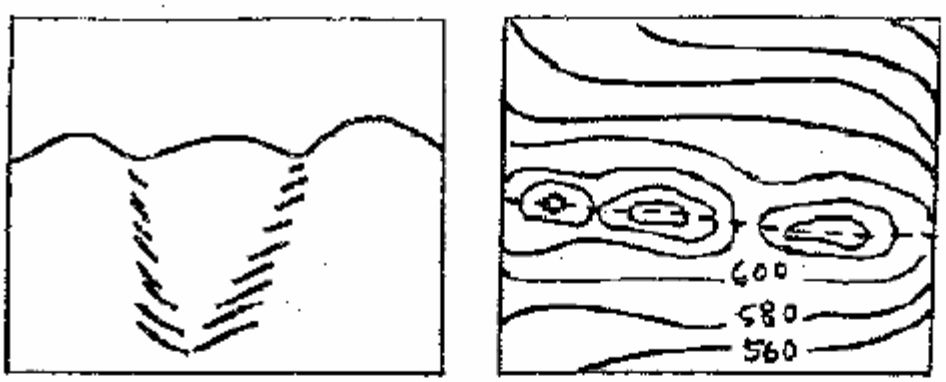
山鞍
(saddle)



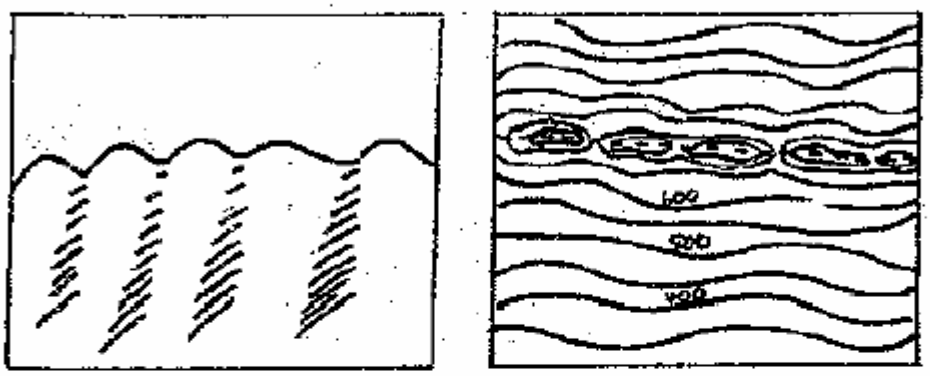
山隘
(pass)



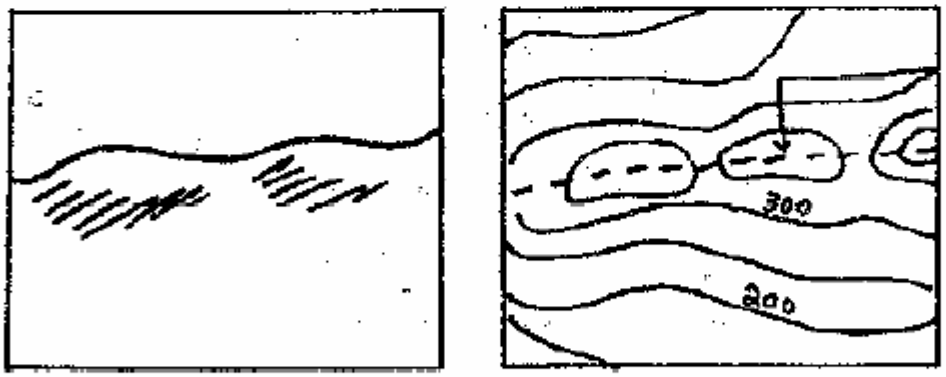
錐形山
(conical hill)



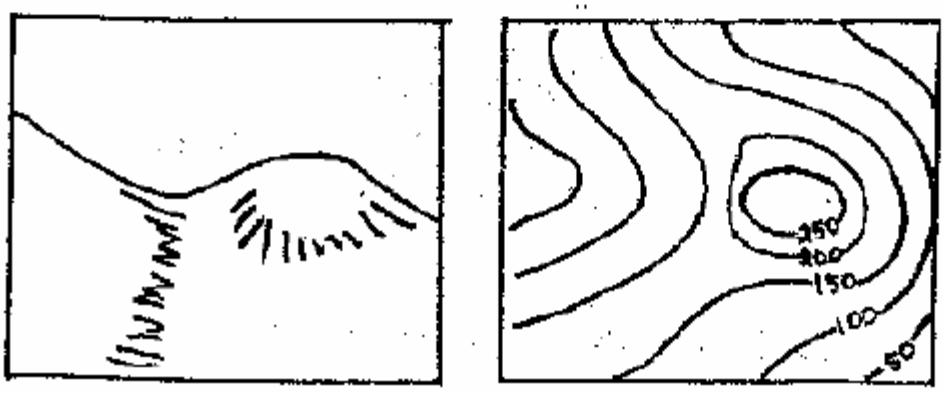
山脊
(ridge)



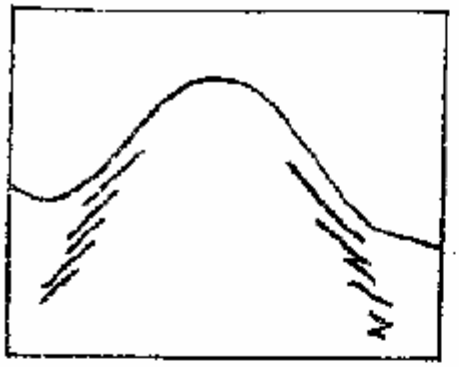
刀形山脊
(knife-edged ridge)

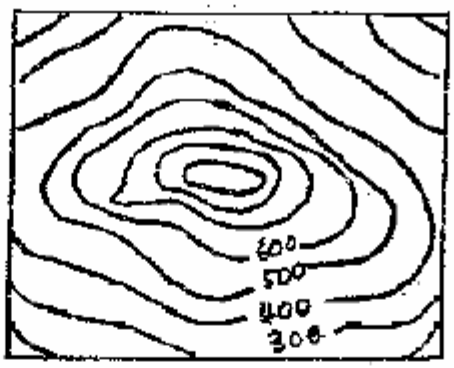


圓頂山脊
(round-topped ridge)

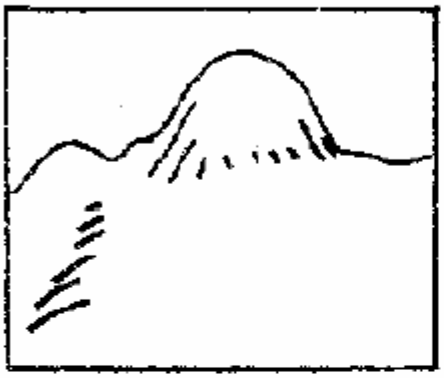


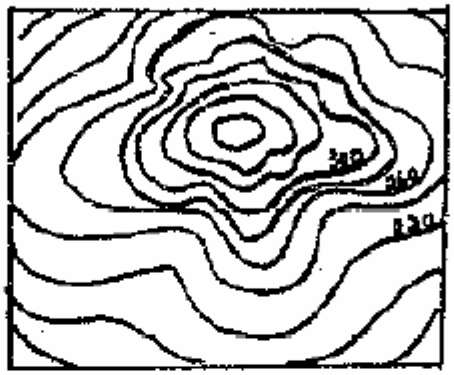
小圓丘
(knoll)



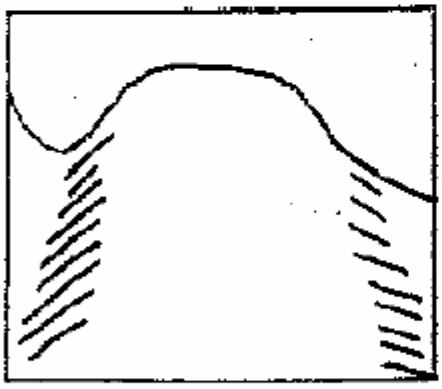


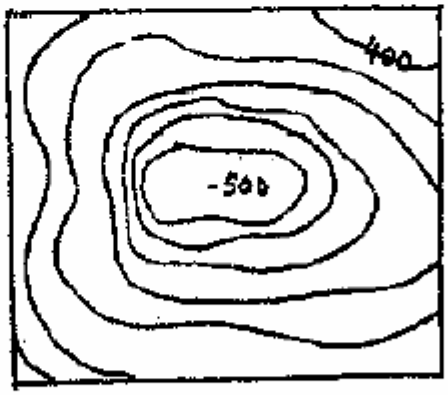
山峰
(peak/summit)



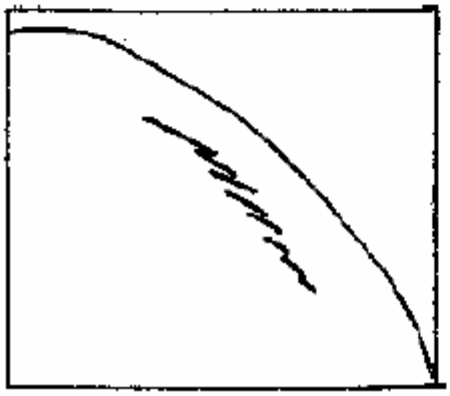


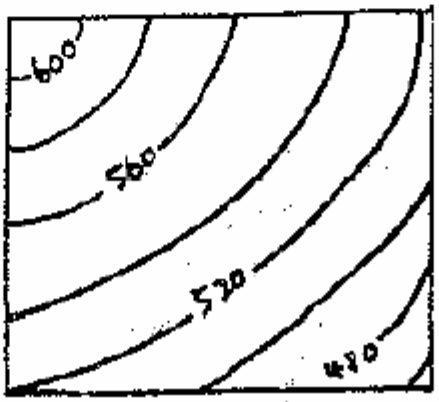
圓頂山
(round-topped hill)



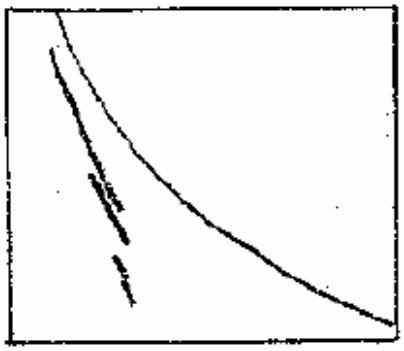


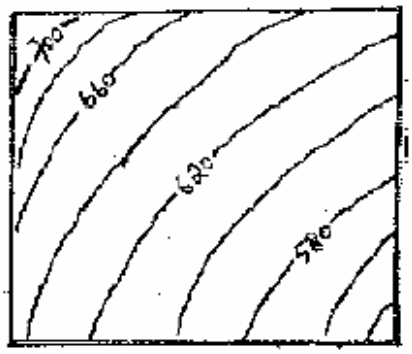
平頂山
(flat-topped hill)



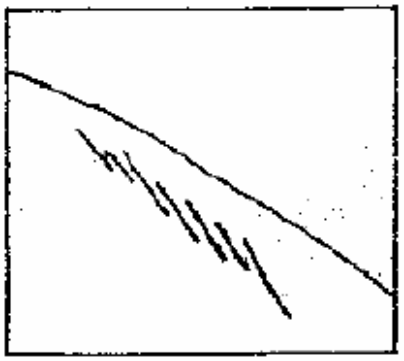


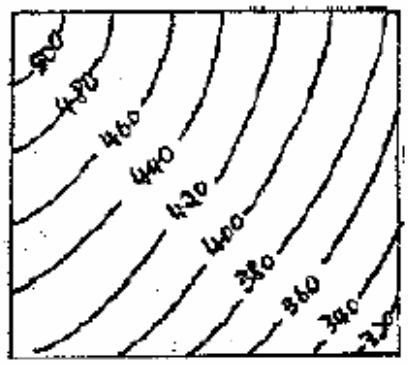
凸坡
(convex slope)



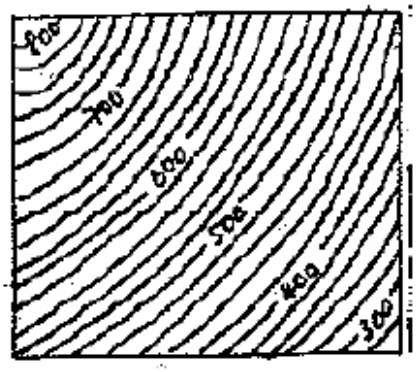


凹坡
(concave slope)





緩坡
(even slope)



陡坡
(steep slope)

(十) 圖網座標

1. 圖網

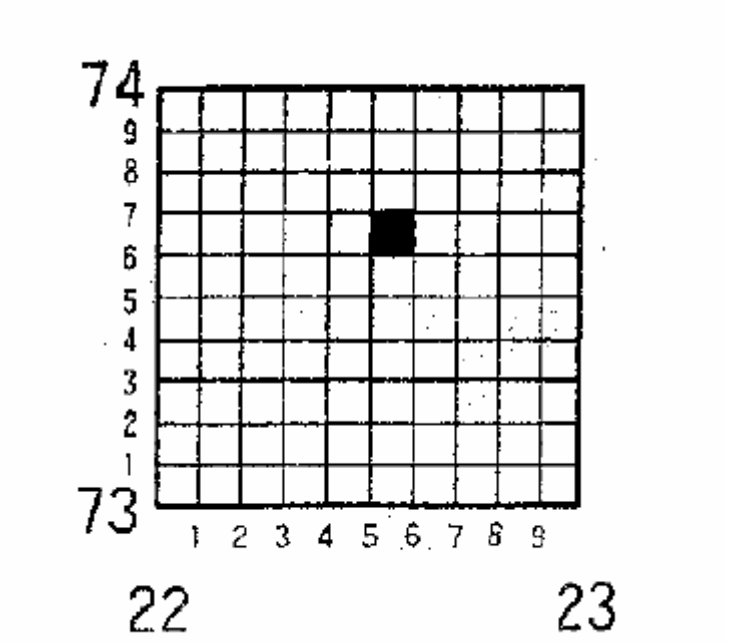
圖網是利用一個方格系統加印在地圖上，使地圖上每一點都可以用數目字（圖網座標）來確定一個地方的位置。因此，圖網是用來表示位置。

圖網是由兩組直線組成－－縱向線，亦稱東距線，及橫向線，亦稱爲北距線。每一條線都用一個兩位數目來定名。

（香港政府所出版之1:20,000 ，HM20C地圖，由1993 年起漸漸改用WGS84 基準作爲座標，圖網數字與1993 年或以前所出的地圖有所不同）

圖網座標的讀法

在閱讀地圖時，要給一個方格的位置命名，首先要讀出其東距線的讀數，然後再讀出其北距線讀數。附圖方格的六位圖網讀數225736 。



2. 統一橫墨卡托方格網(UTM)

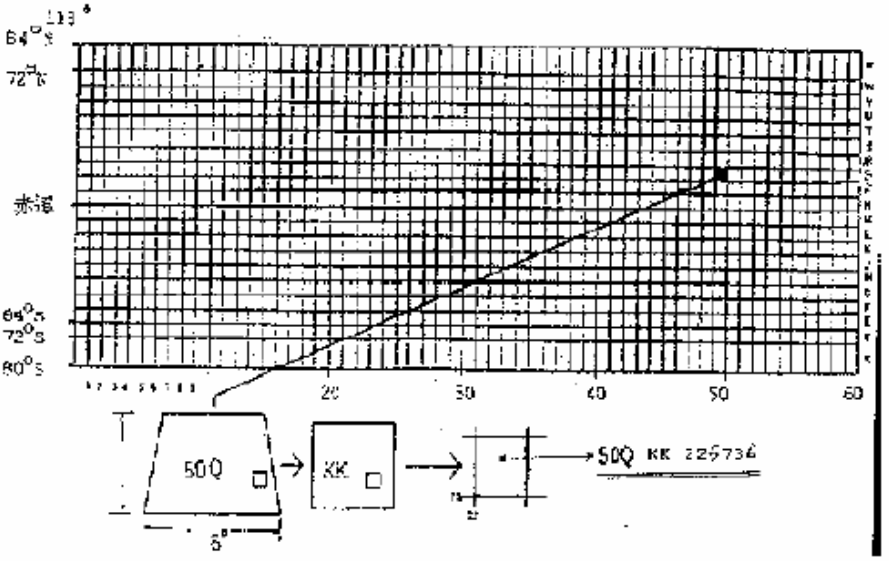
統一橫墨卡托方格網(Universal Transverse Mercator Grid System)是全球通用的標準座標。它是將地球表面分爲若干方格區，每個方格區6 度經度乘以8 度緯度（最北的方格是經度8 度，緯度12 度）

每一個方格區均以數目字及英文字母來命名，而每一個方格區內再分爲若干個一萬平方公里方格區，用兩英文字母來命名。香港位於兩個方格區 － 49Q, 50Q 。在49Q方格區內有兩處較小的地區， GE ，HE ，而在50Q 方格區則爲JK， KK。

使用統一橫墨卡托圖網(UTM)的詳細表示位置的讀法依次是(以上頁、圖爲例)

方格區=50Q ，一萬平方公里方格區=KK，六位圖網數字=225736

統一橫墨卡托圖網讀法依次是：50QKK225736



使用統一橫墨卡托圖網(UTM)的詳細表示位置的讀法依次是(以上頁、圖爲例)

方格區=50Q ，一萬平方公里方格區=KK，六位圖網數字=225736

統一橫墨卡托圖網讀法依次是：50QKK225736

(十一) 地圖摺法

讀閱便法並沒有固定格式，可按使用者的習慣而定，目的以能夠方便閱讀資料和合併同組地圖使用爲主，所以同組別地圖，必須以相同方法覆摺。

(十二) 地圖保養

(1) 使用前用膠袋包好，避免受手汗及雨水淋濕而破捐。

(2) 使用時，避免地圖受石塊、樹枝及筆尖所刺穿。

(3) 不要在地圖上直接書寫，應該用油性顏色筆寫在膠袋上，用後以火酒將筆跡抹去。

(4) 若地圖袋內有水蒸氣，應將地圖取出吹乾再封妥。

(十三）北的認識及磁極誤差

使用地圖及指南針在野外進行活動，必須認三種不同的「北」，它們分別是正北、磁北及方格北。

1. 正北 (True North)

地球是繞地軸自轉，地軸北端是北極，也就是「正北」，地圖上正是用一粒星「*」符號代表。

2. 磁北 (Magnetic North)

地球上北部有一磁場「磁北」是指磁場所在的方向，即是指南針所指的「北」，通常是以一箭咀代表的。利用磁北爲固定方向，所量度出來的角度稱之爲「磁方位」。

3. 方格北 (Grid North)

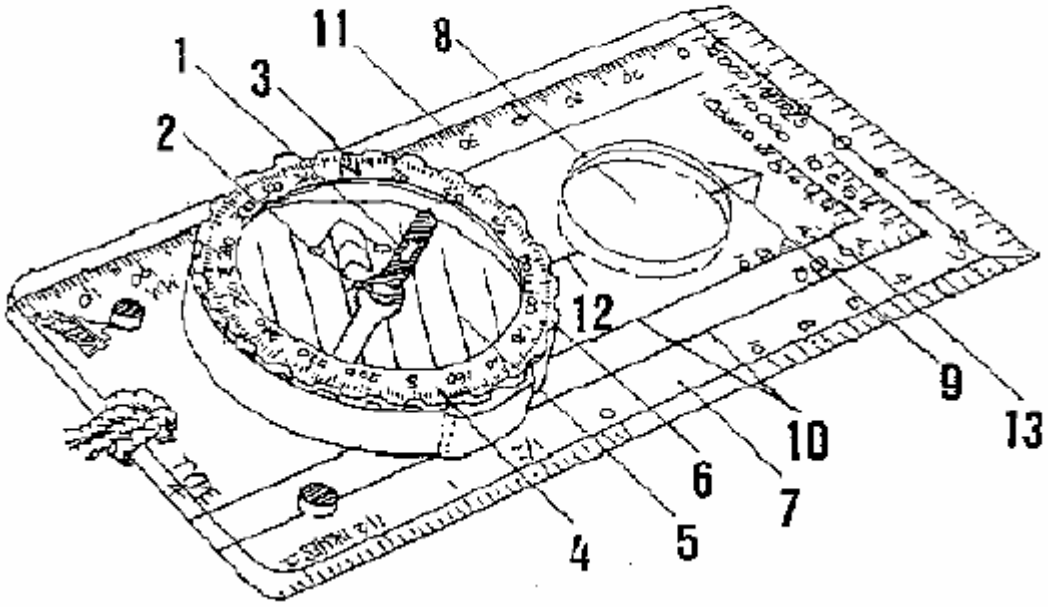
是指地圖上南北走向的網線。爲方便制圖和閱讀，地圖縱線（即東距線）所指上方通常定爲北方。因方格北和正北相差不大，簡單來說，可把圖紙上方當北，便於閱圖和校正方向。

4. 三北的關係（磁極誤差）

以上三種「北」所指的方向都略有偏差，「磁北」的方向更因磁場的變動而經常有所改變，所以在使用指南針及地圖時，若要求高度準確，便要計算該年的磁場偏差的度數。

在香港因三種「北」所產生的偏差十分微，所以無需費時去計算它們偏差的角度。

（一）定向式指南針的結構



1. 磁針 Compass Needle
2. 定向箭咀Orienting Arrow
3. 轉盤北標記North of Dial
4. 轉盤 Compass Housing
5. 定向線Orienting Line
6. 方位角度數Azimuth Bearing Reading
7. 底板 Base Plate
8. 放大鏡 Magnifying Lens
9. 前進箭咀 Direction of Travel Arrow
10. 輔助線 Aid Line
11. 公制尺 Metric Scale
12. 度數指示線 Bearing Indicate Line
13. 方格座標量度尺 Romer for Grid Reference

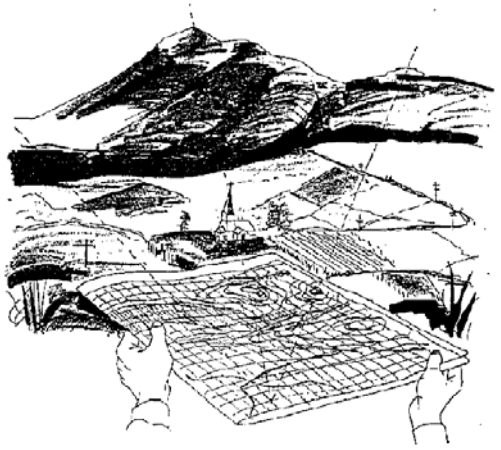
(二) 正置地圖

1. 實物法

先觀察周圍景物特點，然後在地圖上找出類似的地方，將地圖對照周圍景物擺放，直至地圖上所描述的環境方向與實地上四周環境的方向符合。

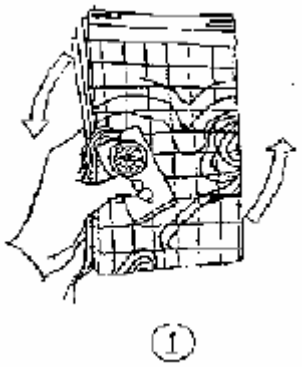
可利用：

- 公路、小徑等線狀景物伸延的方向
- 建築物、橋等點狀景物相關位置
- 山的形狀，山脊及山谷縱走的方向
- 附近數個山與自己所在位置的距離
- 微細的山形地勢



2. 磁針法

首先將指南針的定向箭咀轉至與底板之前進箭咀相同，再將指南針底板之邊沿放在地圖上的方格網線，然後將指南針及地圖一起左右轉動，（要留意地圖及指南針都要平放），直至定向箭咀與磁針



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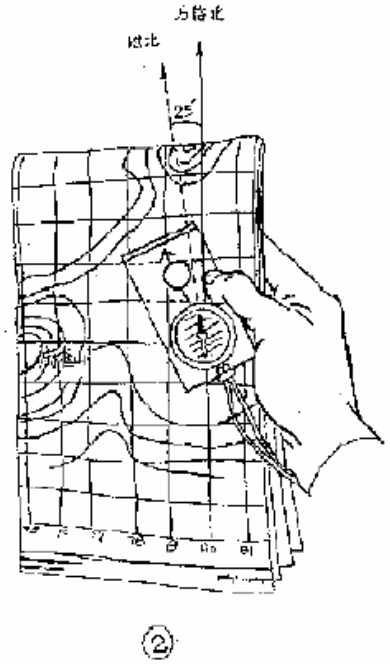
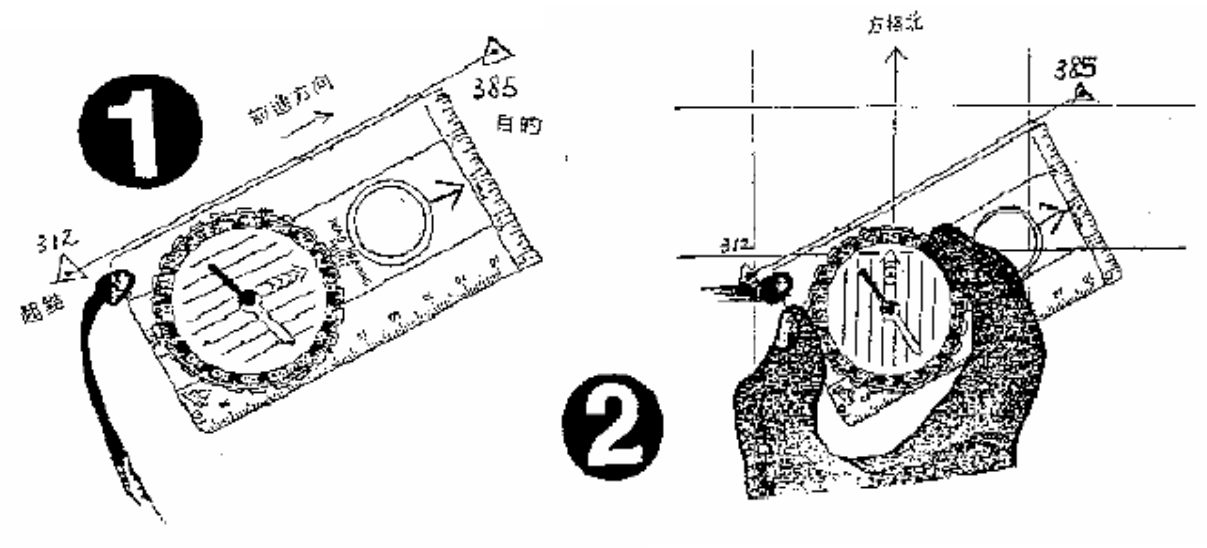


②

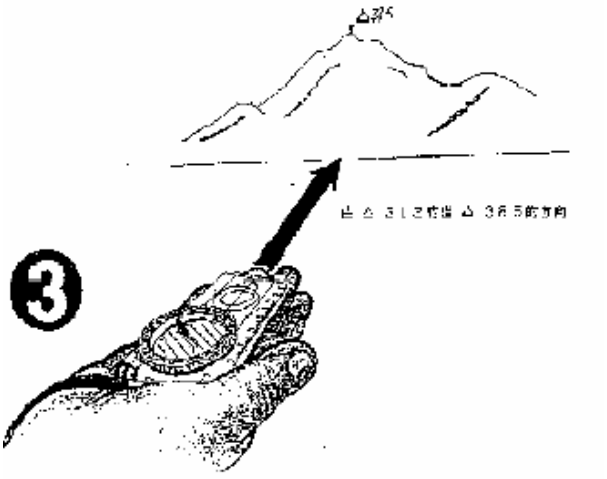
重疊，即磁針紅色一端指向地圖的方格北（注意此方法只適宜在香港使用，在緯度較高地方則應計算其磁北偏差）

(三) 指南針應用方法(西維氏三步曲)

將底板邊緣貼近或平行地圖上起點至目的地的假想直線。注意前進箭咀應指向目的地。將轉盤轉動，使平行線與東距線平行。注意定向箭咀應指向地圖北方。記下度數指不線所顯示
的方位角度數。



取起指南針平於於手掌上，轉動身體，使磁針紅色一端與定向箭咀重疊，這樣前進箭咀便指向目標方向。選擇位於此方向一個特徵景物，於下指南針，朝向此特徵景物前進，到遠後重復這個步驟，直至到達目的地爲止。



使用須知
指南針須平放於手掌上，讓磁針自由轉動，以免磁針與轉盤產生磨擦。
避免在帶有磁場地方，例如高壓電下或靠近金屬物體使用指南針。

(四) 前視方位及後視方位

1. 前視方位（參考西維氏三步曲）

1.1 在地圖上量度方格方位(Grid Bearing)

- 將指南針底板邊緣貼近或平行地圖上起點至目的地之直線。注意前進箭咀應指向目的地。
- 再將底盤轉動，使平行線與東距線平行。注意定向箭咀應指向地圖北方。
- 讀出度數指示線的方位度數。

1.2 在實地量度磁方位(Magnetic Bearing)

- 把指南針平放於手掌上，將前進箭咀指向目標。
- 轉動底盤，使定向箭咀與磁針紅色一端重疊。
- 讀出度數指示線的方位度數。

2. 後視方位

當利用前視方位前進時，若需返回起點，可利用後視方位：

如： 前視方位度數大於180 ，只須將此度數減180 ，得出來便是後視方位。

如： 前視方位度數小於180 ，只須將此度數加180 ，得出來便是後視方位。

保養須知	購買須知
1. 避免接觸腐蝕性液體。 2. 不可儲存在有磁場或金屬的地方。 3. 在使用時不可與硬物碰撞或敲擊。 4. 避免在陽光下暴晒。	1. 方位角單位360 2. 使用簡單 3. 基本設備齊全

(五) 確定自己位置

1. 實物法：

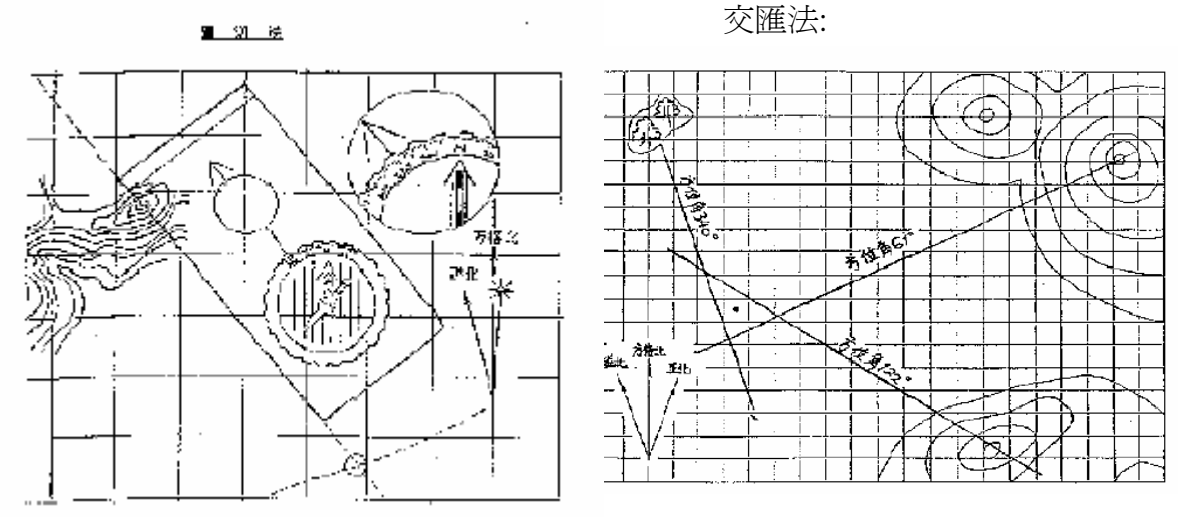
首先利用周圍景物整置地圖，然後依照周圍景物排列方向，定出自己在地圖上正確位置。（可參考整置地圖一項）

2. 單切法：
   2.1 若已知自己所行路線，選擇四周某特徵景物其方向。最好所在路線成一直角。
   2.2 將指南針平放胸前，前進箭咀指向該特徵景物中心點，然後將轉盤轉動，直至定向箭咀與磁針紅色部份重疊，之後，記下所得的前視方位角度數。（例320）
   2.3 然後，在地圖上確定該特徵景物的位置，再將指南針平放於地圖上，保持轉盤原有位置（方位角度數320*）。再用底板前端任何一角對正該景物中心點，並以之爲軸心，將指南針底皮轉動，直至定向箭咀或定向線與就近之東距線平行或重疊。
   2.4 由該景物中心點沿指南底板邊緣畫一直線,直至與所行路線相切。此交切點便是自己所在位置。

*原則上，此度數應加/減方格北及磁北之偏差度數，但本地之偏差輕微，所以，可不加理會。

單切法：

交匯法:



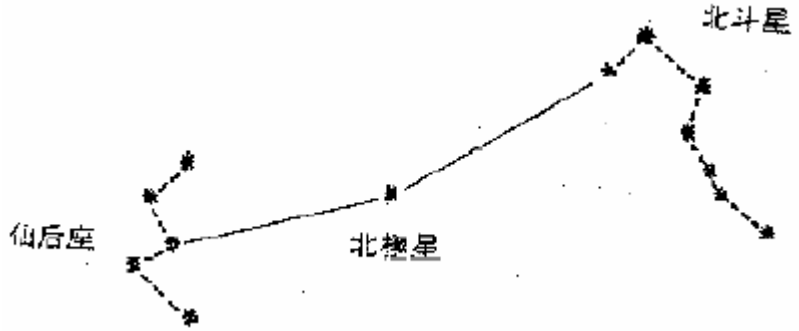
3. 交匯法：
   3.1 先選擇一特徵景物，然後依照單切法在地圖上畫一直線。
   3.2 選擇另一特徵景物，其位置須與上述景物方向不同及成一角度，約在90 至120 之間,再畫一直線。兩條直線交匯點便是自己所在位置。
   3.3 若想更加精確，可再選擇第三個特徵景物，畫三條直線。三條交匯形成之三角地方，便是自己所在位置。若此三角地方過大，則顯示在量度特徵景物之方位時有些錯誤。

(六) 確定方向的方法(不用指南針)

在確定方向時，最方便是先確定北之所在，然後利用自然物體，也可以確定北方之所在。雖然利用指南針及其他量度方向/位置的儀器所量度出來的結果，比利用自然物體所找出來的結果更爲準確，但利用自然物體來確定方，向也是一種有效的輔助方法。

1. 利用太陽及行針式手錶： 首先將行針式手錶校至標準時間，然後將手錶平放，以時針所指時數折半的位置對準太陽（參考下圖），錶面上12 時所指的方向是北方。所在（參考上圖）。的一方多是南方。長的一面多是北方。

2. 利用北斗星： 北斗星是由七顆星所組成，形成杓狀，從杓口的兩顆星一直伸展，便可找到北極星的所在。其伸展的距離約是杓口兩顆星之間的距離的五倍。北極星在北極之上方，所以北極星的方向便是北方（參考下圖）。



3. 利用仙后座：晚上若沒有北斗星出現，仙后座便會出現，仙后座的形狀是一個大「W」。當找到仙后座之後，在W開口中間的一顆星向外伸展不遠，便能找到北橿星之所在（參考上圖）。

4. 利用樹木：在北半球，樹木的年輪較密的一方是北；在一個山咀或山嶺上，樹木較茂盛的一方多是南方。

5. 菁苔：背向太陽的一方的岩石上多數長有菁苔。在北半球，太陽多在南方，所以菁苔生長的一面多是北方。

(七) 在能見度低時如何辨別方向

- 可利用聽覺辨別附近環境，以補視野不足，如水流聲、村落人聲及狗吠聲等等。

練習

場地：操場或空曠地方
用具: 指南針及背囊
時間：15 分鐘

1） 先量度負步距離如: 先到距離線上量度自己步數。
2） 任選一點作起點，放下背囊作記認，
3） 從起點開始;
step 1: 方位45度，前行5m;
step 2: 方位180度，前行2.5m;
step 3: 方位135度，前行5m;
step 4: 方位270度，前行7.5m;
step 5: 方位0度，前行2.5m;
step 6: 方位35度，前行5m;
step 7: 方位90度，前行5m;
step 8: 方位225度，前行5m;
step 9: 方位120度，前行3.5m;
step 10: 方位90度，前行2.5m;
step 11: 方位300度，前行3.5m;

4） 到達經點位買。
5） 站在終點，找出起點的前視方位及距離，將答案寫下通知長官或負責導師。

6） 回家後將3）以平面圖方式繪圖再核自已的答案。

6

Aviation History

HONG KONG AIR CADET CORPS 香港航空青年團

TRAINING GROUP 訓 練 部

Course Description 課 程 綱 要

Course Information

Category	GST
Course Code	ACC06
Course Name	Aviation History
Classification	First Class Cadet
Suggested Duration	3 meetings x 2 hours = 6 hours
Teaching Method	6 Lecture Hours
Assessment Method	Written exam

Aims & Objectives

1.1 Aims

This course provides a brief introduction to the development of aviation and lets the members recogniz e some major events in aerospace history.

1.2 Objectives

On completion of this course, cadets will be able to

1.2.1 Appreciate different great persons in aviation history and their contributions

1.2.2 Indicate some major aviation events as well as how it affects the latter development in the industry

1.2.3 Recognize some aviation records

Syllabus

2.1 Before Wright Brothers

2.1.1 Da Vinci's first draft of Ornithopter

2.1.2 Montgolfier Brothers and Rozier on Hot Balloon development

2.1.3 J Charles and the Airship

2.1.4 Cayley, Lilienthal and Glider

2.1.5 Wright Brothers on their first powered flight

2.2 Civil Aviation Development

- 2.2.1 Breaking the records: Curtiss, Bleriot, Lindbergh, Smith Brothers, Alcock & Whitten Brown
- 2.2.2 Establishment of commercial airlines: Pan American (Pan Am), Impreial Airline
- 2.2.3 Major Aircraft manufacturers : Boeing, Airbus, Lockheed Martin, Northrop Grumman
- 2.2.4 Female pilots: Barones Raymonde de loaroche, Amellia

2.3 Aviation in War

- 2.3.1 Balloon for military use at WWI
- 2.3.2 Fokker plane to carry arms on plane
- 2.3.3 The Red Baron
- 2.3.4 Function of warplane and some famous models
- 2.3.5 Churchill and the WWII

2.4 Invention of Gas, Jet Engine and Helicopter

- 2.4.1 Otto, Heinkel, Ohain and Sir Frank Whittle on the development of jet engine aircraft
- 2.4.2 Sketches before Sikorsky in developing helicopter: Da Vinci and Cayley
- 2.4.3 Development of Helicopter as well as the existence of NOTAR

2.5 Space History

- 2.5.1 Background of space technology competition between Russia and US
- 2.5.2 Satellite development
- 2.5.3 Famous astronauts: Gargarin, Alan Shephard, , John Glenn
- 2.5.4 First landing on moon
- 2.5.5 Introduction to NASA
- 2.5.6 Famous Space Shuttles: X Plane Project, X–15, X -24, DC 9, 1976, Enterprises with 747, Columbia, Challenger, Atlantis, Endeavor

Teaching Method

Lectures will be conducted with diagrams showing different sketches and the development of different aviator models. Also a time line is recommended to indicate the evolution of various aviation events.

Assessment

Written exam will be conducted to assess cadet s' understanding on various important events in aviation history.

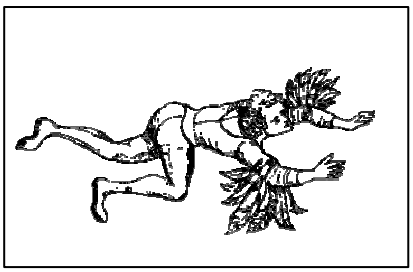
Examination Hours	1 hours
Exam	100%
Practical Assessment	0%
Coursework (Project)	0%

Suggested Readings

NIL

Part A

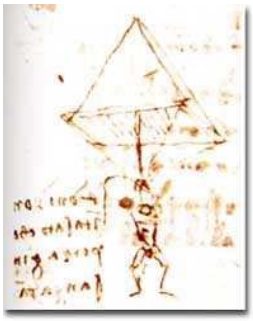
Introduction - Man's Quest to Conquer the Sky



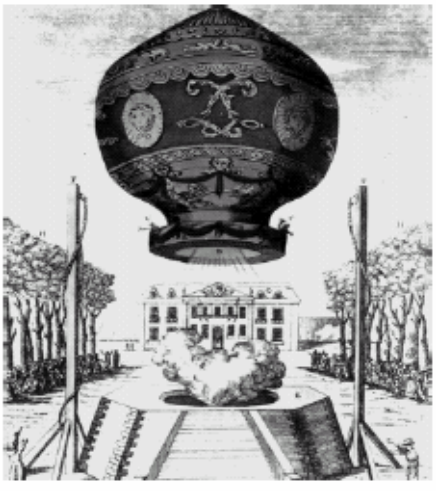
Since the dawn of civilization, men desired t o fly in the wild b lue s ky. The Chinese wer e the first to put the kite into the air some 1,000 years BC, and also invented the rocket during the Yuan Dynasty.

Leonardo da Vinci (1452-1519), Italian

Da V inci was a magnificent artist and scientist of high achievement s during the renaissance. Among his designs were the `Ornithopter', a flapping-wing machine and helicopter. His ideas were the first real scientific attempts to put man into flight.



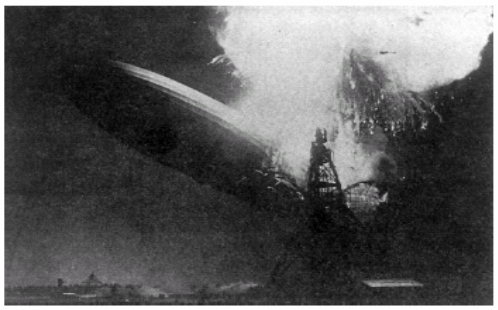
Balloon



It was not until the Montgolfi er brothers built a hot air bal loon in 1783 that man could r ealise his dr eam of get ting airborne. The first balloon flight occurred at Annonay in France on 25 Apri l 1783 where a 12m (39 ft) diameter un-manned balloon filled with hot air climbed to a height of 305m (1000ft) bef ore the hot air in the envelope cool ed and it began to descend. The Montgolfier brothers are said to have been unaware that hot air alone was responsi ble for the balloon rising, believing that a special light gas was gener ated by burni ng a mixt ure of wool and s traw below the open neck of the envelope.

In September 1783 a further demonstration saw the balloon lift a sheep, a duck and a cockerel - the first living creatures to become artificially airborne. Later in the same year Francois Pilatre de Rozier accompanied by the Maquis d'Arlandes made the first free flight in the balloon, remaining airborne for 25 minutes and travelling a distance of 9km. Free flight in a lighter-than-air craft had at last been realised.

Airship



Although this was the beginning of manned flight, it was also the end of the Montgolfier balloon; almost immediately superseded by a much superior and practical hydrogen-filled balloon developed by J Charles. In this balloon both Charles and his assistant made a free flight from the gardens of the Tuileries in Paris on 1 December 1783, covering a distance of 43km (27 miles) and witnessed by over 400,000 people. The Charles balloon was so well designed that the gas-filled balloons used today are essentially similar to it - the main difference being that modern balloons use helium gas, which does not burn, instead of hydrogen.

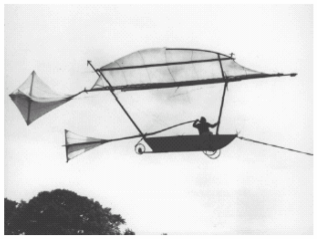
Navigable balloon

It was not long after the de Rozier's first flight in the Montgolfier balloon that the potential of such a vehicle used for military reconnaissance was seen. But, it should be some way of steering it - a basic balloon is simply carried along by the wind. Early ideas of sails, oars and propellers proved useless. It had to be understood that if a lighter-than-air machine was to be steered, then there had to be a controllable force capable of propelling it independently of the wind. From this realization and over 100 years after Montgolfier's first flight, the first airship designs were produced. Engines were attached to provide independent forward motion and control was provided by using rudders to act on the airflow caused by this forward motion.

Glider Flight

George Cayley

In 1804, a British inventor, George Cayley, built the first successful glider. His original craft was a small model. A later full-sized glider carried his coachman, going unwillingly, across a valley. He founded the study of aerodynamics, and was the first to suggest a fixed wing aircr aft with a propeller. He was the founder of the modern science of aerodynamics. It was he who first really under stood how bird fly, and how heavi er-than-air objects could be made to fly. He was also credited for the formation of many important flight theories. For his achievements, he was honor ed as ' The Father of Aviation'.

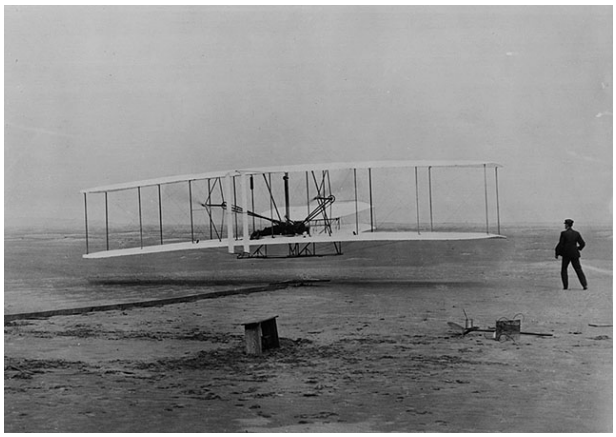


Otto Lilienthal, German

Otto Lilienthal, a German, developed the first gliders in which the glider could be pilot ed. His work (1891-1896) inspired other inventors to t ake up the work of gliders. They included: Percy Pilcher of Great Brit ain, and Octave Chanute of the U nited States. These early gliders were hard to c ontrol, but could carry the pilot hundreds of feet into the air . He was the first to underst and the importance of gaining practical experi ence in the air . In the next 5 years, he made over 2,000 flight s, all in hang-gliders. In August 1896, af ter many test s of fixed- wing gliders, he crashed in his No.1 1 monoplane and died. His last words were 'Sac rifices must be made'. Lilienthal was foremost of the pioneers who discovered theor ies about flight. He built a series of superb gliders and he made a lot of observations and recordings in his expe riments and flights that proved invaluable to later development.

Wright Brothers

Orville and Wilbur Wright were the sons of an American Bishop. They drew much of their early inspirations from the work of Lilienthal. They built their first large glider in 1900, a biplane with a wingspan of 17 feet, and tested it at Kitty Hawk. Through 1901 and 1902, the brothers made hundreds of experiments models gliders and with their own large gliders on which one or other of the brothers sat.



Power Plane

The Wright Brothers decided to build their own engine. It weighed 152 lb., provided 12 hps and drove two propellers. On 12 December 1903, Wilbur's first attempt failed with the aeroplane crashed as it was taking off. The aircraft was quickly repaired. Finally on 17 December 1903, in Kitty Hawk, North Carolina, they achieved the first controlled, powered flight in a seaplane for 12 seconds at 37 feet. By December 1908, Wilbur made many flights' and set up two records - he flew to a height of 360 feet and, on 31 December 1908, he made a flight that lasted 2 hours and 23 seconds.

Part B

Civil Aviation

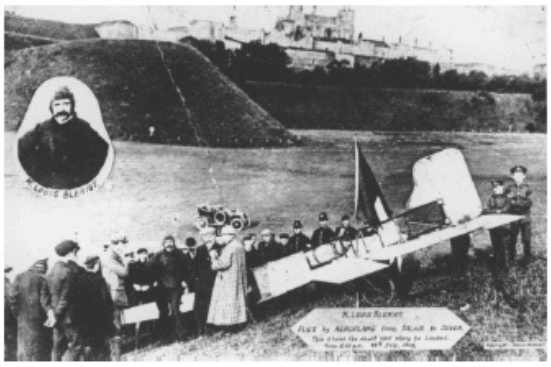
Glenn Curtiss

American aviator Gl enn Curtiss built Amer ica's first seaplane, and early in the following year he produced the first of severa l excellent flying boat designs. One of these, the NC-4, made the firs t west-to-east crossing of the North Atlantic (with stops enroute) in May 1919

Henry Farman

Henry Farmam made a circular flight of 0.62 miles in 1908.

Louis Bleriot



Louis Bleriot invented the aileron--a hinged flap at the wing's edge, which gives the machine it s maneuverability a nd stability: this replaced the Wright brother's system of wire-operated wrapping. On 25 July 1909, he made the first flight through the English Channel (from Calais to Dover Castle) on his small monoplane wit h its 25 hps engine and won the 1,000 pounds Daily Mail Prize.

Igor Sikorsky

Igor Sikorsky, known today as the greatest figure in he licopter engineering, built his first aeroplane in Russia in 1909. His most outstanding pre-war design was the 1913 LeGrand.

Development of Passenger Flight

In 1919, former RAF flyers J ohn Alcock and Arthur Whitten- Brown tried to fl y from America to Europe. They set out fr om Newfoundland on 14 June 1919, flying Vickers-Vimy bomber with two Rolls-Roy ce engines, each generating 350 hps. Alcock and Brown flew for 15 hours and 57 minutes. On 15 June, they landed in an Irish village and received 10,000 pounds from the Daily Mail.

The Australian brothers, Ross and Keith Sm ith were encouraged by the Australian government's offer of a priz e of $10,000 to any Australian who could fly from London to Australia in less than 80 days. The Smiths, with two companions, left Weybridge in Surrey on 12 November 1919 and finally a rrived at port Darwin on 10 December 1919.

Commercial Airline

Pan American World Airways

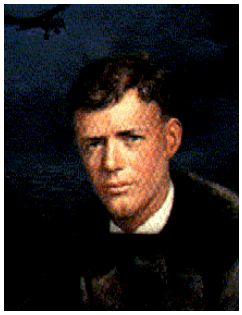
Pan American World Airways (Pan Am) began life in 1927 with a vision, some single engine aircraft and a single route from Key West to Havana. From this beginning came the airline t hat would literally open the world to aviation. ***Pan Am*** launched more new aircraft development than any other airline in history. It pioneered routes across the world's oceans and continents, eventually operati ng daily flights circling the globe.

Then, in 1991 after 64 years of pioneering, ***Pan Am*** finally su ccumbed to years of crushing financial pressures.

Imperial Airways

In 1924, Imperial Air ways was f ormed with 18 aircraft to provide a service over the route explored by the early pioneers. In 1929, there was a through service to India, the journey taking a week. In 1932, a regular service to South Africa was started, taking ten and a half days. In 1934, the service to India was extended and flying via Singapore and then it went on to Australia.

Charles Augustus Lindbergh



Charles Augustus Lindbergh conceived the daring plan of a solo trans-Atlantic flight, and the specifications for an aircraft capable of such a mission. Securing the financial backing of a group of St. Louis businessmen in 1927, he selected the Ryan Airlines Company in San Diego to build the *Spirit of St. Louis*. "Lindy's" specifications were well conceived, deliberately lacking in comfort and personal safety to meet the overriding need for maximum fuel capacity. He personally participated in the design and fabrication of his aircraft by day, and taught himself navigation by night.

Jimmy Doolittle

Doolittle spent the 1920s serving as an engineering test pilot at McCook Field in Dayton, the army aviation test facility, and at the navy facility at Mitchell Field, New York. He was one of the first scientific test pilots. He worked on aircraft acceleration tests and the development of instruments that would enable pilots to fly when they were unable to see the ground called "blind flying." On September 24, 1929, Doolittle made the first "blind" flight, taking off, flying a set course, and landing while flying under a fabric hood so he could not see outside the plane. He received the Harmon Trophy for the feat.

Aircraft Manufacturer

Boeing

Airbus

Lockheed Martin

Northrop Grumman

Female Pilot

Madame Therese Peltier

Within a few years of the epic flight of the Wright brothers, a woman had taken to the air. She was Madame Therese Peltier who on July 8, 1908, at Turin in Italy became the first woman to be an aeroplane passenger. A short whil e later she became the first woman to fly solo but she never became a licensed pilot until March 8, 1910.

Amellia Earhart

Amellia Earhart, an American, flew across the Atlantic in 1928 in a Fokker seaplane, accompanied by two companions. In 1932 she flew solo across the Atlantic, landing in Northern Ireland just 15 hours after taking off from America. In 1937 she set out a round-the -world trip with a companion, F J Noonan. This trip ended in a disaster as their plane disappeared over t he Pacific Ocean and in spite of a careful search there was no trace of the plane or the flyers.

Part C

Military Flight Development

When the WWI broke out in 1914, most nations took interest in the aeroplane p artly because of public enthusiasm and partly because of the fear that rival countries might be doing better in the same field. Since then most flying for peaceful purposes ha d come to a dramatic halt. However , the development of aeroplanes increase d enormously.

At first aeroplanes were only used in aerial reconnaissance missions. Balloons were also used for this purpose. Enemy aircraft could be sent o ut to shot down the balloons sometimes. Hence the pilots had to be armed, and they usually carried a pistol or a rifle. Occasionally, rival airc raft would encounter each other in the air, leading to a dogfight. There was little chanc e of survival for these early airmen if their planes were hit because parachutes were not in general use yet.

In autumn 1915, the Germans deployed a new fighter called 'Fokker'. Machine-guns were mounted in front of the plane and they were synchronized to fire through the aircraft's propellers. Not much later, similar devices equippe d British and French 'fighters' to combat German Fokkers

A 'Flying Ace' is a pilot who shot down 5 or more enemy aircraf t. The most famous of all aces in WWI was German Baron Manfred von Richtofen (the Red B aron) who s hot down between 60 to 80 enemy planes before he himself was shot down by a British fighter . French Capt ain Georges Guynemer shot down 54 German planes but was killed in 1 1 Sept. 1917. Canadian Ma jor W A Bishop shot down at least 50 German planes and was awarded Victoria Cross, Distinguished Service Order and Military Cross.

In the early WWI, aircraft's role was limited only to reconnaissance. Later in the war, some of them were modified to become 'f ighters' or even 'bombers' to project different aspect s of ai r power. By the out break of the war , all major powers were equipped with warplanes, whic h had come a l ong way in terms of function, speed and weapons installed when compared to their WWI forerunners.

Functions of warplanes

a. fighters to combat the enemy planes in the air and attack enemy troops on the ground

b. tactical bombers to attack enemy troops on the ground in direct support of friendly force, to disrupt enemy transportation and strike their facilities

c. strategic bombers to attack enemy cities, carrier-based aircraft were designed to operate from aircraft carriers

Speed of warplanes increased greatly with the creation of powerful piston engines.

Some examples of famous warplanes in WWI

Bomber	Fighter
B17 Flying Fortress (USA) B24 Liberator (USA) B29 Superfortress (USA) Lancaster (UK) Mosquito (UK)	Spitfire (UK) Hurricane (UK) Me 109 (Germany) Me 262 (Germany) Zero (Japan) P-40 Kittyhawk (USA) P-38Lighting (USA) P-47 Thunderbolt (USA) P-51 Mustang (USA) P-6F Hellcat (USA) F-4U Corsair (USA)

Part D

Invention of Gas Engine & Jet Engine

In 1872, a German engineer, August Otto , invented a gas engine, which was the forerunner of all internal combustion engines.

In September 1937, German scientists Er nst Heinkel and Von Ohain successfully built and tested the world's first hydrogen fuel turbojet engine. Through this experiment, a new concept on engine design came into being.

The first aircraft jet engine was created by an Englishman, Sir Frank Whittle. He did the initial test on his engine on 12 August 1937 and a contract was awarded by Air Ministry to him in March 1938.

On 27 August 1939, the first turbojet pow ered airc raft had its maiden flight in Germany. The aircraft was named He 178 to honor the contribution of Ernst Heinkel.

Invention of Helicopter

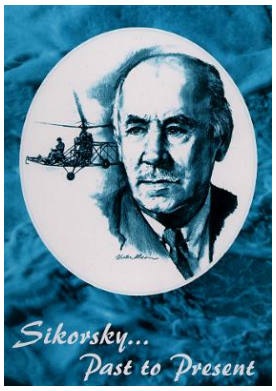
During the Renaissance, Leonardo Da Vinci designed a helicopter like machine. He wrote that `if this instrum ent is well construc ted and the helix (aircrew/propeller) is turned with great speed, it shoul d be able t o screw itself up in the air and rise high. Unfortunately there was then no engine that could turn the screw sufficiently quick.

Sir George Cayley later built a model with rotating wings in 1800, which rose as high as 90 feet in the air.

On 13 November 1907, Cornu the Frenchman made a machine, which lifted him and a passenger 50 feet into the air where they hovered for over a minute. A 24-horse power engine was used to drive the two rotors of his machine.

In 1909, Sikorsky made his firs t machine but when it prov ed to be too hea vy for the engines, he turned to designing conventional aircraft.

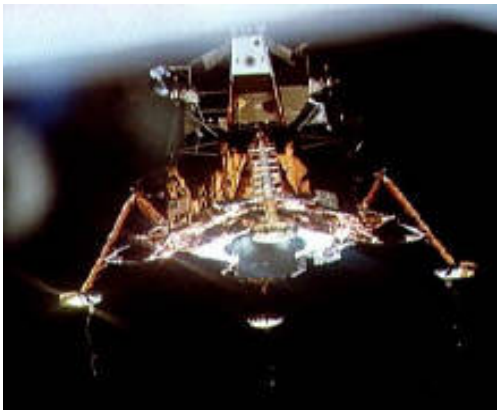
In December 1941. Leonardo made his firs t real rotorcraft and performed a successful demonstration to American Military officers.


Sikorsky...
Past to Present

Part E

Aerospace History

October 4, 1957 Russia Sputnik 1st Satellite



The Space Age began with the success of the Soviet satellite **"Sputnik"** in 1957, the first human-made object to orbit Earth. Since this auspicious launch, many robotic spacecraft have begun the exploration of the solar system. However, there are certain things that just cannot be accomplished by even the most sophisticated robot, so once the preliminary reconnaissance is completed, crewed missions are the necessary next step.

On 6 December 1957, USA tried but failed to launch a three-stage Vanguard rocket at Cape Carnaval.

On 1 February 1958, USA succeeded in launching the satellite Explorer I by Junol rocket. The satellite swung around the earth in a wide, oval orbit and discovered that the earth is girdled by electrically charged particles from the sun, trapped by earth's magnetic field

Yuri Gagarin (1934-1968)

The first person to travel in space was Yuri Gagarin. After becoming a member of the Soviet Air Force in 1955, Gagarin joined the Soviet cosmonaut-training program. He first orbited Earth on April 12, 1961 in the Vostok 1. Lasting 108 minutes, his space flight was launched from the Baikonur cosmodrome in the Soviet Union, orbiting Earth at speeds up to 27,400 kilometers per hour. Vostok 1 used shortwave and VHS communications to remain in contact with the Soviet base. Gagarin ejected by parachute, and returned safely to Earth.

Alan Shephard (1923-1998)

Alan Shephard was the first American to fly into space. On May 5, 1961, the Naval Academy graduate flew a fifteen-minute suborbital flight in the Freedom 7 Mercury capsule. Although he was considered for a Gemini mission, his next space flight was not until Apollo 14, January 1971. He became a founding member of the National Space Society (NSS) in the late 1970s. The NSS is an educational group dedicated to the exploration of space civilization.

John Glenn (1921-)

The first American to orbit Earth was John Glenn. Glenn served as a U.S. Marine Corps pilot in World War II and the Korean War. In 1959, Glenn was one of seven people chosen for the Mercury program. Glenn orbited Earth three times in the Friendship 7 on February 20, 1962. Total flight time was four hours, fifty-five minutes. The flight took him across the Atlantic, then over Africa, the Indian Ocean, and Australia. His contributions did much to alleviate the fear that the Soviets were the only ones making advances in space and aeronautics, and helped the American space program gain popularity.

Glenn is, coincidentally, also the oldest American to travel in space. On October 30, 1998, at the age of seventy-seven, John Glenn took part in a nine-day mission on the space shuttle Discovery (STS-95) to participate in biological tests, including the effects of space on the aging process.

Glenn was a designated payload specialist on the mission; his duties included running experiments in the zero gravity environment of space. The training and analysis Glenn endured before, during, and after the mission were intense; fluid samples, monitoring devices, and other physical tests were administered constantly. Glenn's flight attracted international publicity because of his celebrity status; his role not only provided scientific information, but also revitalized interest in the space shuttle program,

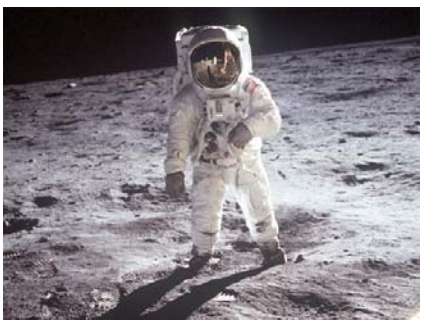
Alan Shepard, John Glenn, Virgil Gus Grissom, L Gordon Cooper, Walter Schirra, Donald Deke Slayton and Scott Carpenter were the **7 Mercury astronauts**.

Apollo Project

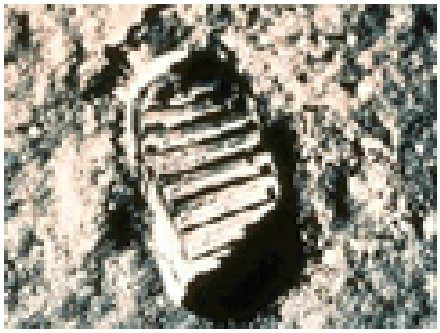
Project Apollo was the United States' third crewed series of spaceflight missions. The objectives were clear: land a human on the surface of the Moon, explore the Moon's surface for as much useful information as possible, devise the technology to allow humans to work in a lunar environment, and create understanding for promoting the role of the United States as a pre-eminent force in the space race.

Lunar Landings

On 20 July 1969 Americans Neil Armstrong and Edwin Buzz Aldrin become the 1st men on the moon. Six Moon landings were accomplished over the course of eleven manned launches (with a total of seventeen unmanned launches).



The Apollo missions involved 2 modules – a command module (CM), and a lunar module (LM). While one cr ew member orbited the Moon inside the command module, the other two astronauts took the lunar module down to the Moon's surface to ta ke pictures, collect samples, and then retu rn to the command module or the trip home to Earth. There were, of course, some tr ials prior to the first successful moonwalk. Apollo I caught fire on the launch pad during a preflight test and all three astronauts on board (Virgil Grissom, Ed White, and Roger Chaffee) were killed. This accident was the only fatality in the U.S. space program to that point. Neil Armstrong became the first American to set foot on the Moon with Apollo 11 (Columbia CM, Eagle LM) in 1969, followed shortly thereafter by Edwin "Buzz" Aldrin ; their mission was tracked fr om orbit by the third astronaut, Michael Co llins. A metal plague was left on the lunar surface: **'HERE, MEN FROM PLANET EARTH FIRST SET FOOT UPON THE MOON, JULY 1969 AD, WE CAME IN PEACE FOR ALL MANKIND'.**



The National Aeronautics and Space Administration (NASA) is famous for most of the brilliant achievement s which have t aken man to the st ars. Th e introduction of sp ace rockets had accorded man the ability to transform the dream of space exploration into reality. Many rockets were built to put sa tellites and sp acecraft into orbit and finally to the moon. As the US sp ace programme went in full swing, some the best minds started to think of a reusable sp acecraft, which could transport materials and people between the earth and the orbiti ng st ations. The brainchild of such researches is the Space Shuttle Orbiter.

Before the sp ace shuttle programme, NASA had originally a X-plane high-supersonic aircraf t programme on which the sp ace shuttle concept was based. The X-15 and X-24 were prototypes of the sp ace shuttle. In 1976, the first sp ace shuttle `Enterprise' was manufactured.

NASA Dryden Flight Research Center Photo Collection
http://www.dfrc.nasa.gov/gallery/photo/index.html
NASA Photo: E-7469 Date: 1961 Photo by: NASA photo

X-15 landing on lakebed

The space shuttle Orbiter is about the size of a DC-9 aeroplane and weight s about 556,000 pounds. The name Enterprise is in co mmemoration of the sp ace vessel featured in the famous TV science fic tion series `Star T rek'. On 12 August 1977, Enterprise was put over a specially modified Boeing 747 Jumbo Jet to carry out the Approach and Landing Test.

After an exhaustive s eries of test s, the sp ace shuttle Columbia with an external fuel t ank and tw o powerful solid fuel rocket boosters were l aunched into sp ace on 12 Jan 1981. John Young and Rober t Crippen was at the helm for 53 hours in this first ever sp ace shuttle mission.

The Space Shuttle

1981 USA The 1st Space Shuttle Launch

Beginning in 1981, a new vehicle called the sp ace shuttle was used for sp ace travel. The shuttle allows men and women to live and work in space.

NASA Dryden Flight Research Center Photo Collection
http://www.dfrc.nasa.gov/gallery/photo/index.html
NASA Photo: EC01-0041-6 Date: February 20, 2001 Photo by: Tony Landis
Space Shuttle Atlantis landing at 12:33 p.m. February 20, 2001, on the runway at Edwards Air Force Base, California, where NASA's Dryden Flight Research Center is located.

The space shuttle program has provided reliable transportation into sp ace for the last twenty years. S pace shuttle missions have t aken astronauts, satellites, and a variety of scientific experiments into orbit. The sp ace s huttle consists of three basic component s – an orbiter with engines, rocket booste rs, and an external fuel t ank. Only the orbiter and the engines actually go into orbi t around Ea rth; the rocket boosters and fuel t ank drop of f af ter launch. The major fuel t anks are reusable, and are picked up from the ocean and refilled for later use. There have been **5 space shuttles** to date – **Columbia, Discovery, Challenger, Atlantis, and Endeavor**, as well as the test model, **Enterprise**, which never flew into space.

NASA Dryden Flight Research Center Photo Collection
http://www.dfrc.nasa.gov/gallery/photo/index.html
NASA Photo: EC01-0041-2 Date: February 20, 2001 Photo by: Tom Tschida
Space Shuttle Atlantis landing at 12:33 p.m. February 20, 2001, on the runway at Edwards Air Force Base, California, where NASA's Dryden Flight Research Center is located.

Columbia, it is the oldest space shuttle in the fleet. First launched in 1981, it stands 37.2 meters tall, with a maximum width of 23.8 meters. The shuttle can accommodate up to eight crewmembers, with over 70 cubic meters of inhabitable space. Columbia had successfully completed 26 spaceflights at the start of the year 2000.

Challenger, the second space shuttle, it was designed as a structural test orbiter, but was upgraded to a space-quality shuttle by 1982. Challenger had nine successful missions, but was destroyed in a tragic accident during its tenth flight in 1986. Unexpectedly cold temperatures caused mechanical failure following launch, and all the crew members died. Their names were Gregory Jarvis, Ronald McNair, Ellison Onizuka, Francis Scobee, Judy Resnik, Michael Smith, and S. Christa McAuliffe. All shuttle missions were suspended for two years following this disaster.

Discovery, the third shuttle was in use since 1984, it retrieved satellites, deployed the Hubble Space Telescope in 1990, rendezvoused with the Russian Mir Space Station in 1995, and allowed John Glenn to return for another trip into space in 1998.

Atlantis was completed in 1984, it was the forth shuttle built. It weighs nearly 7,000 pounds less than Columbia, and was quicker to construct. It has been on missions since 1986, including the launching of the Galileo spacecraft and the Magellan probe.

Endeavor was built as a replacement following the Challenger accident, and was completed in 1991. Endeavor was built as a replacement following the Challenger accident, and was completed in 1991. Endeavor has assisted in the construction of the International Space Station, as well a many other missions

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國 旗、國 徽

HONG KONG AIR CADET CORPS 香港航空青年團

TRAINING GROUP 訓 練 部

Course Description 課 程 綱 要

Course Information

Category	CT
Course Code	ACC07
Course Name	National Flag & Emblem 國旗、國徽
Classification	First Class Cadet
Suggested Duration	2 sessions x 2 hours = 4 hours
Teaching Method	Lecture
Assessment Method	Written Exam

Aims & Objectives

1.1 目的

讓學員了解國旗、國徽、國歌、區旗和區徽的含義、規格和產生方法

1.2 學習目標

完成課程後，學員會認識：

1.2.1 國旗的特色、意義和規格
1.2.2 國徽的特色、意義和規格
1.2.3 區旗的意義和規格
1.2.4 區徽的意義和規格
1.2.5 國旗的優先地位
1.2.6 國旗、國徽、區旗和區徽的用途
1.2.7 升降旗幟
1.2.8 國歌的產生

Syllabus

2.1 國旗、國徽

2.1.1 國旗的特色、意義和規格
2.1.2 國徽的特色、意義和規格

2.2 區旗、區徽
2.2.1 區旗的意義和規格
2.2.2 區徽的意義和規格
2.3 相關資料
2.3.1 國旗的優先地位
2.3.2 國旗、國徽、區旗和區徽的展示
2.3.3 旗幟的狀況
2.3.4 國旗、國徽、區旗和區徽的用途
2.3.5 升降旗幟
2.4 國歌
2.4.1 國歌的產生

Teaching Method

透過面授和展示實物使學員了解國旗、國徽、區旗和區徽的一般資料和使用方法。

Assessment

透過筆試評估學員對國旗、國徽、國歌、區旗和區徽之認識程度。

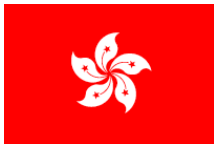
Examination Hours	1 hours
Exam	100%
Practical Assessment	0%
Coursework (Project)	0%

Suggested Readings

節錄自香港歷史博物館的資料

國旗

國徽



區旗

區徽

旗幟所象徵的意義

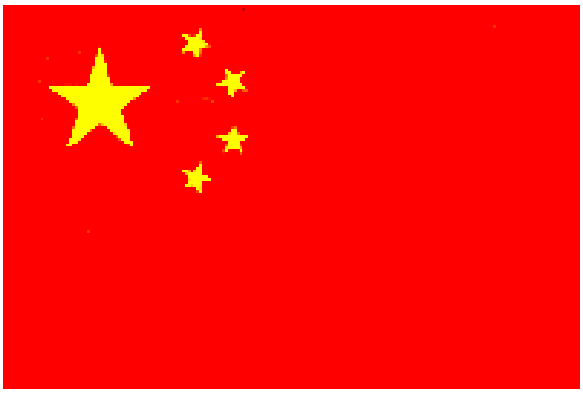
國旗是一個國家的象徵，是獨有的象徵。所有國家都有國旗，而國徽也很普遍。

中國旗是中華人民共和國的象徵，是國家和國家主權的象徵。它代表中華人民共和國，代表她的尊嚴、統一及領土完整。

區旗是香港特別行政區，作爲“一國兩制”方針下中華人民共和國不可分離部分的獨有的象徵。在本判案書中，本席在提及中華人民共和國時會採用全名或簡稱爲“中國”，而在提及香港特別行政區時則會採用全名或簡稱爲“香港特區”或“特區”。

作爲如此獨有的象徵，國旗及區旗對香港特區的固有重要性可見於1997年7月1日子夜來臨的歷史性時刻，在香港舉行，標誌著中華人民共和國恢復對香港行使主權的交接儀式上，以升起國旗及區旗揭開儀式序幕的這項事實。

中華人民共和國國旗



國旗的特色及意義

- 五星紅旗；
- 國旗旗面的紅色象征革命；
- 五角星用黃色是爲了在紅地上顯出光明；
- 大五角星代表中國共產黨，四顆小五角星代表中國人民；
- 五顆五角星相互的關係，象征中國共產黨領導下的人民大團結；
- 設計者：曾聯松

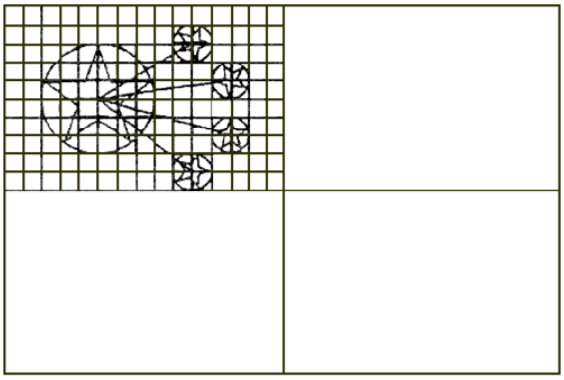
國旗規格

- 國旗的形狀、顏色兩面相同
- 旗上五星兩面相對
- 旗面爲紅色
- 長方形其長與高爲三與二之比
- 旗面左上方綴黃色五角星五顆。一星較大，其外接圓直徑爲旗高十分之三，居左；四星較小，其外接圓直徑爲旗高十分之一，環拱於大星之右。
- 旗桿套爲白色。

國旗旗面通用尺寸

- 國旗之通用尺度定爲如下五種，各界酌情選用：
- 長度(厘米) x 高度(厘米)
- 288 x 192
- 240 x 160
- 192 x 128
- 144 x 96
- 96 x 64

國旗製法圖案



中華人民共和國國徽

國徽的特色及意義

- 中間是五星照耀下的天安門；
- 周圍是谷穗和齒輪；
- 麥稻穗、五星、天安門、齒輪爲大赤金色；
- 圓環内的底子及垂绶爲紅色，金、紅兩種顏色在中國是象征吉祥喜慶的傳統色彩；
- 天安門象征中國人民反帝反封建的不屈的民族精神；
- 齒輪和谷穗象征工人階級與農民階級；
- 五顆星代表中國共產黨領導下的人民大團結。

國徽規格

- 兩把麥稻組成正圓形的環；
- 齒輪安在下方麥稻稈的交叉點上；
- 齒輪的中心交結紅綬；
- 紅綬向左右綰住麥稻而下垂，把齒輪分成上下兩部；
- 從圖案正中垂直畫一直線，其左右兩部分，完全對稱；
- 圖案各部分之地位、尺寸，可根據方格墨線圖之比例，放大或縮小；
- 如製作浮雕，其各部位之高低，可根據斷面圖之比例放大或縮小；
- 國徽之塗色爲金紅二色：麥稻、五星、天安門、齒輪爲金色，圓環内之底子及垂綬爲紅色；紅色同於國旗，金爲大赤金(淡色而有光澤之金)。

國徽徽面通用尺寸

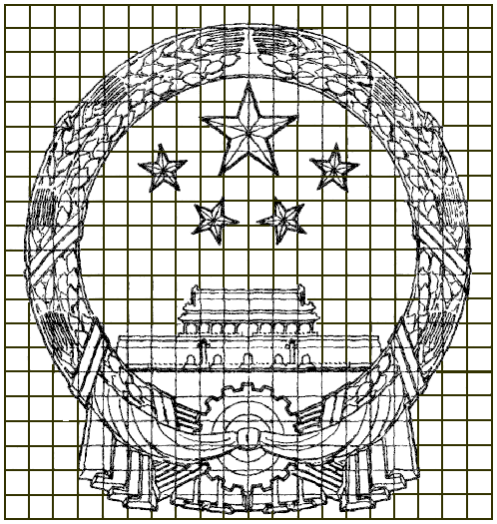
- 供展示或使用的國徽的直徑通用尺度爲下列三種：

  (a) 100 厘米

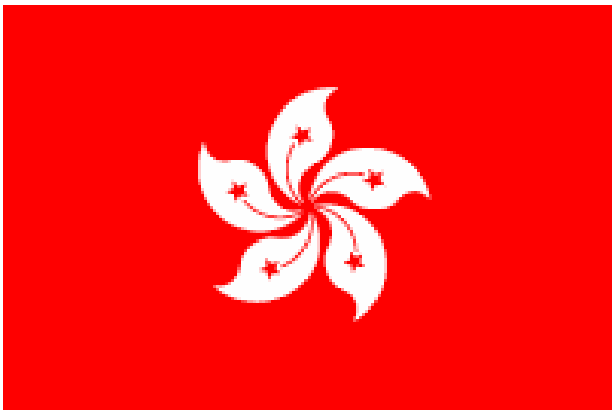
  (b) 80 厘米

  (c) 60 厘米

國徽方格墨線圖



國徽縱斷面圖



香港特別行政區區旗

香港特區區旗是一面五星花蕊的紫荊花紅旗。紅旗代表祖國，紫荊花代表香港。紫荊花紅旗象徵香港是祖國不可分割的一部份，同時象徵香港在祖國懷抱下蓬勃生長，花蕊上的五顆星則象徵香港同胞心中熱愛祖國。旗幟的花瓣分別爲紅、白兩種顏色，體現一國兩制的精神。

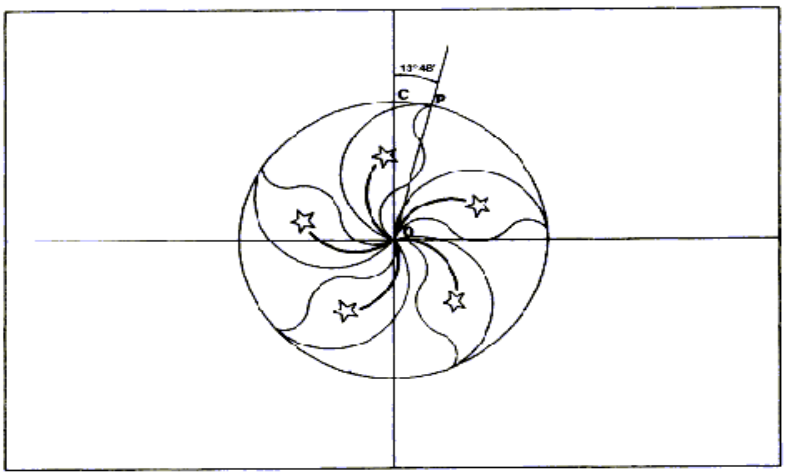
區旗規格

- 區旗的形狀、顏色兩面相同；
- 旗上紫荊花兩面相對；
- 區旗旗面爲紅色，以中華人民共和國國旗紅爲標準；
- 區旗旗面呈長方形，其長與高爲三與二之比；
- 區旗旗面中繪有一朵白色動態五瓣紫荊花；
- 其外圓直徑爲區旗旗高的五分之三；
- 各花瓣圍繞區旗旗面中心點順時針平均排列；
- 在每片花瓣中均有一顆紅色五角星及一條紅色花蕊；
- 紫荊花中心點位於區旗旗面中心；
- 旗桿套爲白色；

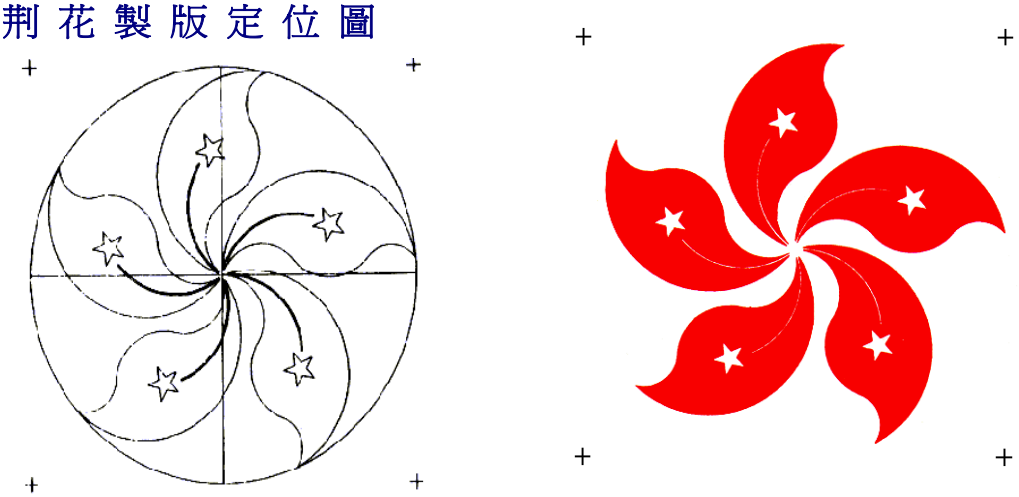
區旗旗面通用尺寸

- 區旗旗面通用尺寸定爲如下八種：
- 1 號　　288 x 192
- 2 號　　240 x 160
- 3 號　　192 x 128
- 4 號　　144 x 96
- 5 號　　96 x 64
- 車旗　　30 x 20
- 簽字旗　21 x 14
- 桌旗　　15 x 10
- 因特殊需要製作不同尺寸區旗時，均按通用尺寸成比例地放大或縮小。

紫荊花定位圖



紫荊花製版定位圖



香港特別行政區區徽

區徽爲圓形，四周有「中華人民共和國香港特別行政區」和英文「香港」字樣，中間是五星花蕊的紫荆花，構思及象徵意義與區旗相同，亦是以紅、白兩色體現一國兩制的精神。

區徽規格

- 區徽呈圓形，徽面由紅色環形窄邊；
- 文字區外圈、紅色內圓及五星花蕊動態紫荆花圖案所組成；
- 位於區徽徽面內圓中央的動態紫荆花圖案爲白色；
- 由五片花瓣組成，每片花瓣中均有一顆紅色五角星及一條紅色花蕊鑲在其間；
- 各片花瓣環繞區徽徽面中心點順時針均勻排列；
- 紫荆花中心點位於區徽徽面的中心點。

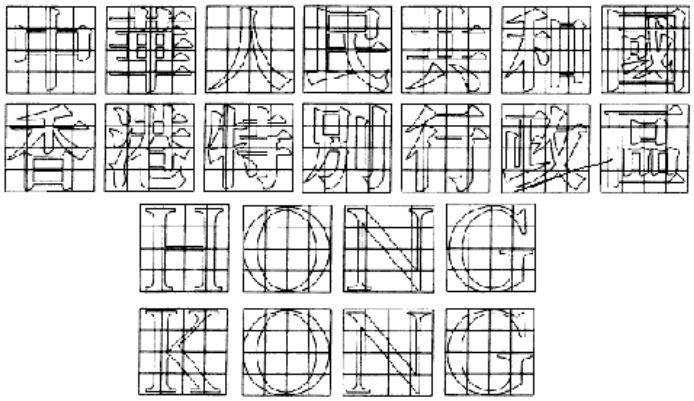
區徽徽面通用尺寸

- 區徽徽面通用尺寸定爲如下三種：
- 1 號直徑 100 厘米
- 2 號直徑 80 厘米
- 3 號直徑 60 厘米
- 因特殊需要製作不同尺寸區徽時，均按通用尺寸成比例地放大或縮小。

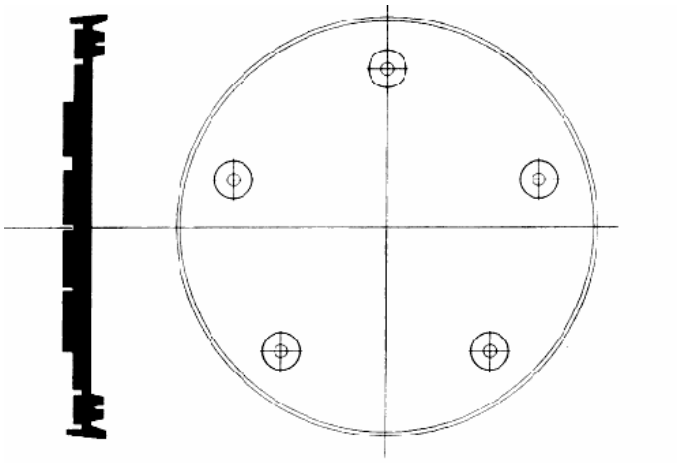
區徽徽面定位圖

1. 環形窄邊的寬度爲區徽直徑的百分之一。
2. 文字區外圈的寬度爲區徽直徑的十分之一。
3. 紫荊花外輔助圓直徑爲區徽直徑的十分之六。
4. 中文字區夾角爲 220 度。中文字高爲文字區外圈寬度的十分之七。
5. 英文字區夾角爲 80 度。英文字高爲文字區外圈寬度的十分之六。
6. 五角星區夾角分別爲 30 度。其外圓直徑與紫荊花內五角星一致。

區 徽 徽 面 中 英 文 標 準 字 樣



區 徽 剖 面 示 意 圖



區 徽 製 版 定 位 圖

國旗、國徽、區旗及區徽的展示

國旗的優先地位

- 升掛國旗，須將國旗置於顯著的位置。
- 列隊舉持國旗和其他旗幟行進時，國旗須在其他旗幟之前。
- 國旗與其他旗幟同時升掛時，須將國旗置於中心、較高或者突出的位置。
- 在外事活動中同時升掛兩個或以上國家的國旗時，須按照外交部的規定或者國際慣例升掛。

同時懸掛國旗及區旗

- 凡國旗與區旗同時懸掛時，須將國旗置於中心、較高或者突出的位置。國旗與區旗同時或并列升掛、使用時，區旗應小於國旗。
- 列隊舉持國旗和區旗行進時，國旗應在區旗之前。
- 平列懸掛國旗和區旗時，國旗在右，區旗在左。
- 於室內展示國旗及區旗，在確定旗幟後方牆壁的"左"、"右"時，以人背向該牆而立，面向前方時的"左"、"右"爲準。於建築物外展示國旗及區旗，在確定該建築物的"左"、"右"時，以人立於建築物前，面向該建築物前門時的"左"、"右"爲準。

在政府合署及建築物展示國旗和區旗、國徽和區徽

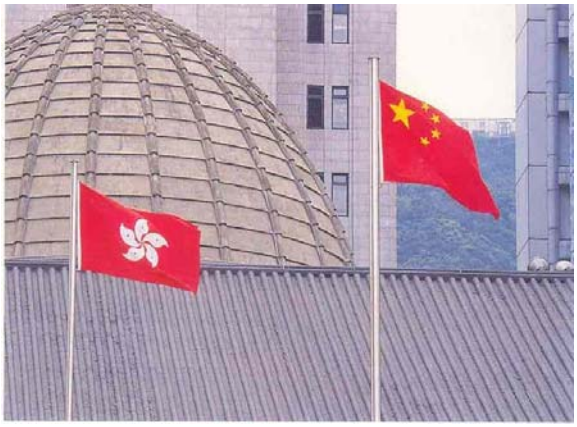
- 目前，當局每日都在行政長官官邸、香港禮賓府、香港國際機場及香港特別行政區的所有邊境管制及檢查站，展示國旗和區旗。此外，該等旗幟亦於每個工作日，在各主要政府合署及建築物，如行政長官辦公室、行政會議、終審法院、立法會及設於海外的香港經濟貿易辦事處展示。
- 在某些指定日子，當局亦會在其他政府合署及建築物，如醫院、學校、部門總部、體育及文化場館等地方展示國旗和區旗。該等指定日子爲每年國慶日(十月一日)、香港特別行政區成立日(七月一日)和元旦(一月一日)。
- 傳統上，國旗和區旗是在日出時升起，日落時降下。按照這項傳統，國旗和區旗應在上午八時升起，下午六時降下。
- 國徽及區徽須於中區政府合署展示。此外，區徽亦於主要政府合署及建築物，如行政會議、立法會、各級法院、各區民政事務處及設於海外的香港經濟貿易辦事處展示。

旗幟的狀況

- 不得展示或使用破損、污損、褪色或不合規格的旗幟。
- 須定期檢查旗幟，以確保清潔及完好無缺。毋須使用時，須把旗幟弄乾、摺疊整齊和妥爲存放。

惡劣天氣

- 如遇惡劣天氣，可免升掛旗幟。

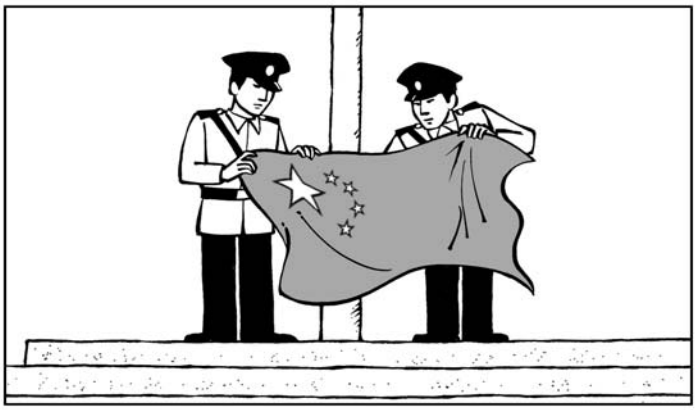


禁止將國旗、國徽、區旗及區徽用作某些用途

- 不得展示或使用破損、污損、褪色或不合規格的國旗、國徽、區旗或區徽。
- 國旗、國徽、區旗或區徽必須按法律規定的規格製造。
- 國旗、國徽、區旗或區徽或其圖案不得展示或使用於商標或廣告。此外，國旗或其圖案不得展示或使用於私人喪事活動，國徽或其圖案不得展示或使用於日常生活的陳設或布置或私人慶弔活動。任何人違反這些條文即屬違法。
- 非經行政署長事先批准，任何人不得在任何行業、職業或專業中、或在任何非官方機構的標識、印章或徽章中，使用國旗、國徽、區旗或區徽或其圖案。
- 任何人公開及故意以焚燒、毀損、塗劃、玷污、踐踏等方式侮辱國旗、國徽、區旗或區徽，即屬違法。

升 降 旗 幟

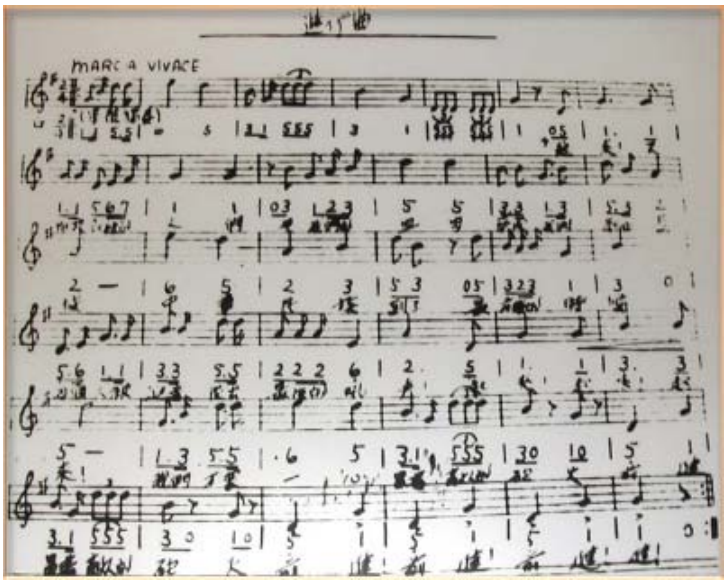
- 每 枝 旗 桿 只 准 升 掛 一 面 旗 幟 。
- 在 直 立 的 旗 桿 上 升 降 旗 幟 ， 應 當 徐 徐 升 降 。 升 起 時 ， 必 須 將 旗 幟 升 至 桿 頂 ； 降 下 時 ， 不 得 使 旗 幟 落 地 。
- 凡 國 旗 與 區 旗 并 列 升 掛 時 ， 須 先 將 國 旗 升 起 ， 而 國 旗 亦 須 於 最 後 降 下 。
- 下 半 旗 時 ， 須 先 將 旗 幟 升 至 桿 頂 ， 然 後 降 至 旗 頂 與 桿 頂 之 間 的 距 離 爲 旗 桿 全 長 的 三 分 之 一 處 ； 降 下 時 ， 須 先 將 旗 幟 升 至 桿 頂 ， 然 後 再 降 下 。



中國國歌(義勇軍進行曲)

- 由詩人田漢所作、音樂家聶耳作曲，創作於1935年
- 義勇軍進行曲 原本是電影《風雲兒女》的主題歌
- 是誕生於抗日戰火中的歌曲
- 它的旋律鏗鏘有力而且能激發中國人的民族精神
- 在1949年9月27日中國人民政治協商會議決定用這首歌作爲中華人民共和國的代國歌
- 同年12月4日，第五屆人大會第五次會議一致通過，確定「義勇軍進行曲」正式爲中華人民共和國的國歌

聶耳(左)及田漢(右)



義勇軍進行曲的手稿

中華人民共和國國歌
(義勇軍進行曲)

- 起來！不願做奴隸的人們！
- 把我們的血肉，
- 築成我們新的長城！
- 中華民族到了最危險的時候，
- 每個人被迫著發出最後的吼聲！
- 起來！起來！起來！
- 我們萬眾一心，
- 冒著敵人的炮火　前進，
- 冒著敵人的炮火　前進！
- 前進！前進！進！

參考資料

國旗

中國國旗法

1949年9月27日，即臨近1949年10月1日中華人民共和國建國之日，中國人民政治協商會議第一屆全體會議首次通過關於國旗的決議。決議第四段爲：

“全體一致通過：中華人民共和國的國旗爲紅地五星旗，象徵中國革命人民大團結。”

現時，有關國旗的條文於現行中國憲法第一百三十六條有所訂明。

中國國旗法於1990年6月28日由全國人民代表大會常務委員會通過及由中華人民共和國主席公布，並自1990年10月1日起施行。第一條述明該法是“爲了維護國旗的尊嚴，增強公民的國家觀念，發揚愛國主義精神”而根據憲法制定的。第二條訂明國旗是五星旗，並須按指明的製法說明製作。第三條規定：

“中華人民共和國國旗是中華人民共和國的象徵和標誌。

每個公民和組織，都應當尊重和愛護國旗。”

國旗法對升掛國旗的事項，例如升掛地點、時間及方式，也有所規定。

《基本法》

全國性法律於香港特別行政區的適用範圍，受《基本法》第十八條第二款所管限：

“全國性法律除列於本法附件三者外，不在香港特別行政區實施。凡列於本法附件三之法律，由香港特別行政區在當地公布或立法實施。”

第十八條第三款規定，全國人民代表大會常務委員會在徵詢其所屬的香港特別行政區基本法委員會和香港特別行政

區政府的意見後，可對列於《基本法》附件三的法律作出增減。條文進一步規定：

“任何列入附件三的法律，限於有關國防、外交和其他按本法規定不屬於香港特別行政區自治範圍的法律。”

1997年7月1日，全國人民代表大會常務委員會依據第十八條第二款，將中國國旗法與其他法律一起增列於附件三的法律中。

“任何人公開及故意以焚燒、毀損、塗劃、玷污、踐踏等方式侮辱國旗…，即屬違法，一經定罪，可處第5級罰款[即50,000元]及監禁3年。”

如有國旗的複製本並非與國旗完全相同，但其相似程度足以使人相信它就是國旗，則就本條例而言，該複製本被視爲國旗。

第9條規定：

“(1)香港特別行政區內觸犯有關國旗及國徽的規定的罪行，按香港特別行政區現行法律進行調查及予以檢控。

(2)如本條例與根據《基本法》附件三公布的任何全國性法律有不相符之處，本條例須解釋爲該全國性法律的特別實施或改編本，並如此實施。”

區 旗

《基本法》

《基本法》第十條第一款及第十條第二款規定：

“香港特別行政區除懸掛中華人民共和國國旗和國徽外，還可使用香港特別行政區區旗和區徽。

香港特別行政區的區旗是五星花蕊的紫荊花紅旗。”

香港特別行政區籌備委員會於1996年8月10日第四次全體會議上通過有關區旗的規定。1990年4月4日，《全國人民代表大會關於〈基本法〉的決定》通過《基本法》及香港特別行政區區旗及區徽的圖案。在該決定未通過之前，基本法起草委員會主任向全國人民代表大會致詞解釋時，曾述及區旗及區徽的選擇程序，並說明區旗及區徽的圖案。他在說到區旗時表示：

“區旗是一面中間配有五顆星的動態紫荊花圖案的紅旗。紅旗代表祖國，紫荊花代表香港，寓意香港是中國不可分離的部分，在祖國的懷抱中興旺發達。花蕊上的五顆星象徵著香港同胞心中熱愛祖國，紅、白兩色體現了‘一國兩制’的精神。”

區旗條例

區旗條例旨在就使用及保護區旗事宜制定條文。該條例賦予行政長官類似國旗條例所賦予的權力。他有權規定區旗的展示及使用事宜。見第3(1)條。第3(2)條及附表3開列出區旗的使用及展示辦法。該等條文原先已獲籌備委員會通過爲暫訂條文，制定目的在於“維護”區旗的“尊嚴”及確保人人正確使用區旗。條文述明區旗及區徽：

“是香港特別行政區的象徵和標誌。每個香港居民和團體都應當尊重和愛護區旗、區徽。”

該條例規定了區旗與國旗同時懸掛時的使用及展示辦法，那就是，國旗必須置於較顯眼的位置。見第3(2)條及附表3。任何人不得展示或使用破損、污損、褪色或不合規格的區旗。見第4條。區旗必須按照訂明規格製造。見第5(1)條。區旗或其圖案不得展示或使用於商標或廣告或行政長官規定的其他場合或場所，違反上述規定即屬刑事罪行。見第6(1)條及6(2)條。

國歌

國歌稿件的審閱

國歌的徵集啓事經周恩來審批後，於 1949 年 7 月 15 日至 8 月 15 日連續在國內外的報章上刊登，徵集的截止日期爲 8 月 20 日，並列明國歌的創作應注意中國之遠景，以及用語體文寫作、不宜過長的要求。國歌徵稿啓事登報後，社會反應非常熱烈，來稿遍及全國和海外，共有應徵稿 632 件，歌詞、曲譜 694 首。第六小組雖然選取了一部分來稿，並組織樂隊試奏，但總覺得效果不大理想，更斷定在短時間內難以創作出理想的歌詞曲譜。

國歌的提出

由於開國大典迫在眉睫，當毛澤東得知國歌的徵選懸而未決時，便親自召集了 20 多位各界代表進行商議。會上，徐悲鴻及梁思成力主以《義勇軍進行曲》爲代國歌，並得到周恩來的同意。其間雖然有人提出反對，認爲「中華民族到了最危險的時候」這句歌詞不合時宜，但與會者大致同意以這支樂曲作國歌。1949 年 9 月 25 日，在毛澤東、周恩來主持的協商國旗及國歌的會議上，與會者決定沿用舊歌詞。9 月 27 日，中國人民政治協商會議第一屆全體會議一致通過在中華人民共和國國歌未正式制定前，以《義勇軍進行曲》爲代國歌。

《義勇軍進行曲》

《義勇軍進行曲》是誕生於抗日烽火中的戰歌。繼 1931 年的九一八事變，日本侵華的野心昭然若揭，於是在上海從事音樂工作的田漢、聶耳矢志寫作能喚醒民眾、鼓舞人民的歌曲。1935 年，上海電通影業公司攝製了一部以抗日救亡爲主題的電影《風雲兒女》，由田漢編寫劇本，並撰寫主題歌《義勇軍進行曲》的歌詞，後來交由聶耳譜曲。1935 年 5 月 16 日，上海出版的電通畫報首次刊登《義勇軍進行曲》的歌譜；7 月，《風雲兒女》上映後，《義勇軍進行曲》更風靡一時。

國歌的變動及規範

文化大革命期間，田漢被四人幫誣衊爲叛徒而遭迫害，《義勇軍進行曲》的歌詞亦一度被禁唱。1978年3月5日，第五屆全國人民代表大會第一次會議通過了《關於中華人民共和國國歌的決議》，採用《義勇軍進行曲》的原曲，再集體填寫新詞。直至1982年12月4日，第五屆人大第五次會議一致通過，確定《義勇軍進行曲》爲中華人民共和國國歌，並恢復原有歌詞。1984年8月1日，中共中央宣傳部擬定了《中華人民共和國國歌奏唱的暫行辦法》，規定可以奏唱國歌的場合，以及奏唱國歌時的禮儀我慣例，通行至今。

資料來源：香港歷史博物館