

行政院及所屬各機關出國報告

(出國類別：1 考察2 進修3 研究4 實習5 其他)

赴美國聯邦航空總署民航學院  
參加「10502 教官培訓（國際班）」研習  
報告書

服務機關：民航局

出 國 人 職 稱：管制員

姓 名：于 堃

出國地區：美國

出國期間：92.9.1 至 92.9.26

報告日期：92.10.28

H2/  
C09204156

## 行政院及所屬各機關出國報告提要

出國報告名稱：赴美國聯邦航空總署民航學院參加「10502 教官培訓（國際班）」  
研習報告書

頁數 35 含附件：是 否

出國計畫主辦機關：交通部民用航空局

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單位：飛航服務總台花蓮近場台

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出國類別： 1 考察  2 進修  3 研究  4 實習  5 其他

出國期間：92 年 9 月 1 日至 92 年 9 月 26 日 出國地區：美國

報告日期：92 年 10 月 28 日

分類號/目

關鍵詞：赴美國聯邦航空總署民航學院參加「10502 教官培訓(國際班)」研習報告書

內容摘要：「10502 教官培訓（國際班）」為美國 FAA 民航技術學院多項國際班中重要課程之一，授課對象皆為各國相關民航單位從業人員。且每年僅開課一次；課程內容則在培訓各民航訓練單位之教官熟識教學方法與實際教學演練！期使完訓後之各單位教官們在返回工作單位後能夠發揮所學，充分利用各項資源與各行業執掌之專業知識，達成以下之目的：

1. 計畫及組織課堂講授。
2. 完成設計課程主題、課後測驗、訓練目標、互動項目及課程計畫。
3. 利用課程計畫實施課堂講授、主題、課後測驗、訓練目標及互動項目。
4. 於課堂施教時能展現出有效的溝通技巧及技術傳授。
5. 於實習科目中提供有效的展示教學與實作技巧。
6. 以筆試及實作來有效評估學員們的表現。

\*本文電子檔已上傳至出國報告資訊網

## 10502 教官培訓（國際班）」研習報告書

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## 壹、目的

「10502 教官培訓（國際班）」為美國 FAA 民航技術學院多項國際班中重要課程之一，授課對象皆為各國相關民航單位從業人員。且每年僅開課一次；課程內容則在培訓各民航訓練單位之教官熟識教學方法與實際教學演練！期使完訓後之各單位教官們在返回工作單位後能夠發揮所學，充分利用各項資源與各行業執掌之專業知識，達成以下之目的：

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- 三、利用課程計畫實施課堂講授、主題、課後測驗、訓練目標及互動項目。
- 四、於課堂施教時能展現出有效的溝通技巧及技術傳授。
- 五、於實習科目中提供有效的展示教學與實作技巧。
- 六、以筆試及實作來有效評估學員們的表現。

## 貳、研習行程

表一 研習行程表

92年9月01日	起赴美程
92年9月03日	研習開始
92年9月23日	課程結束
92年9月26日	返抵國門

## 參、教師及各國學員介紹

如前所述，FAA 教官培訓（國際班）每年只招訓一至兩次；學員則來自許多不同國家及不同專長之民航從業人員。例如筆者本身為航管專長，其餘學員則各專長均有。此次開班所招募之學員計分別來自五個國家、專長為航管及各類查核員等。分述如下：

一、日本：男女各一，兩位均是日本航空保安學校航管教官。

一位負責航路、一位則是終端；年輕資歷卻深，35歲左右的年紀卻都已有近15年之航管經驗。

二、韓國：三位參訓學員中有兩位負責航查，一位則是漢城終端管制教官。

三、阿根廷：兩位，均為航查人員。

四、克魯索：兩位女士，均為當地區管中心管制員。（註：當地目前仍僅實施人工管制）

五、台灣：僅筆者一人奉派受訓，目前擔任花蓮進場管制台督導。

教官共有兩位，**Bob** 教育訓練專長，已擔任教官七年，資歷豐富、教學風趣幽默。且負責帶領全班所有參訪課程！**Phylis** 原任高中教師多年，至 **FAA** 擔任教職約兩年，教學嚴謹、師生相處愉快！

本課程雖長達三週，但也僅由此二位教官全程負責任教。課程內容活潑有趣、且因是國際班；故安排多次參訪行程至各相關單位，甚至包含 **Oklahoma** 州政府；由副州長親自接待並頒發各學員「榮譽副州長證書」（請參閱附件一）！讓所有學員受寵若驚，此舉亦可看出 **FAA** 課程安排用心之深、宣揚美式文化之不遺餘力！

#### 肆、課程內容

本班所學內容大概是 **FAA** 所有開班課程中最特殊者之一！其不但與航空各業無關，甚且應說本課程完全獨立於 **FAA** 所有課程之外。可若要說完全不相關，此課程卻又真正對所有各航空專長之教官們提供了非常專業、非常豐富的內容。足供所有需要課堂講授或 **On The Job Training** 的各業教官們一個真正學習如何課堂講授、在職訓練的難得機會。由於本課程最重要的是要求身為教官者學習如何做好課前準備、課堂講授、師生互動、課

後測驗及成果驗收；因此學程中所有各國學員均被要求全力以赴，全程參與各階段之教學演練。每位學員均需上台做實際講授。雖不限定教學內容，但須做到課本所學與教官所要求之程度，並且在每位學員講授完畢後由教官及所有學員共同檢討批評所授內容與各方面之表現，能否合於本課程之要求！兩位教官固然語多鼓勵，但學員們彼此之間卻互相較勁，都想求得最佳表現！筆者深感此一方式效果非凡，值得我們訓練單位參考！

課程學習之重點為：

一、100%的參與感！

二、完成各階段之課堂授課與在職訓練之實際操演！

1. 自我介紹（習慣面對大家說話，使用英語）
2. 五分鐘演講（為避免緊張，可使用本國語言）
3. 十分鐘演講（作為後續課程鋪路練習，之後均使用英語）
4. 主題練習（練習教授某一主題課程，）
5. 十五分鐘課堂講授練習（增加內容與膽量之訓練）
6. 三十分鐘實際課堂講授（含所有課程設計、互動、考試、成果驗收）
7. 三十分鐘在職訓練課程設計與實際教學（須負責教授講解與實作，最後並負責檢定學員之通過與否）

8. 五十分鐘課堂講授（需包含所有所學授課技巧與所有主題、互動、測驗、成果驗收）此項講授亦當作所有學員之期末考試，通過者始可獲得結訓證書，成爲一名合格教官（結訓證書請參閱附件二）！

#### 伍、課堂排程

請參閱附件三



陸、課程重要內容

表二 課程重要內容說明表

Chap. 1	Plan and organize classroom presentations.
Chap. 2	Prepare lesson objectives, end-of-lesson tests, training aids, interactive items, and lesson plans.
Chap. 3	Conduct classroom presentations using lesson plans, objectives, end-of-lesson tests, training aids, and interactive items.
Chap. 4	Demonstrate effective communication skills and instructional techniques during classroom presentations.
Chap. 5	Conduct laboratory/workshop presentations applying effective demonstrations/performance techniques.
Chap. 6	Administer and critique written/performance evaluations.

## 柒、課程大綱與翻譯

### 一、A programmed course on programmed instruction

(學習如何設計一堂有組織、有計畫的課程)

#### Principles of programmed instruction (原則)

1. Small steps (減緩進度)
2. Active student response (鼓勵回應)
3. Immediate confirmation (及時肯定)
4. Students learn at their own pace  
(由學員本身調整學習速度)

#### Principles used in job-centered training (JCT)

1. Small steps (減緩進度)
2. Active student response (鼓勵回應)
3. Immediate confirmation (及時肯定)

#### JCT

**Definition: A system of course design and instruction tailored to the specific needs of students who will perform a particular job.**

**Characteristics (特性):**

1. Job-oriented (工作導向)
2. Well-defined objectives (明確定義主題)

- 3.High student achievement (高學員完成率)
- 4.Standardized instructional content (教學內容標準化)
- 5.Controlled pacing and responding (控制步調與反應)
- 6.Optimum step size (強調合宜的步伐)
- 7.Student-centered (以學員為中心)
- 8.Knowledge of Results (導出結論)
- 9.Active student participation (激勵參與感)

## 二、Organizing for presentation

### Communication (溝通):

The transference of thought or Feeling through speech, gestures, posture, facial expression, and tone and quality of voice.

### Parts of Presentation (組成元件):

1. Introduction (介紹)
  - a. Purpose: Prepare the audience. (準備妥當)
  - b. Tells Why, What, and How. (告知因何，如何，為何)
2. Body (主體)
  - a. Purpose: Accomplish desired outcomes specified in the introduction. (達成明確告知主題)
  - b. Includes essential material. (包含基礎題材)
3. Summary/Conclusion (結尾)

- a. Purpose: Ensure learning/communication has occurred.  
(確定達成學習及溝通)
- b. Review of Main Points. (複習重點)
- c. Closure (作結尾)

Organizing a presentation (設計一次教學):

1. Analyze the Situation (分析情況)
2. Determine Objective (決定主題)
3. Plan the Body (規劃主體)
4. Plan the Summary (設計結尾)
5. Plan the Introduction (完成全案)
6. Tryout/Revise (試教與修正)

**三、Characteristics of effective instruction (有效教學之特性)**

Using class notes and handouts, you will be able to identify:(利用註記與標示來完成)

1. Seven qualities desired of an effective instructor:
  - a. Subject mastery (掌控主題)
  - b. Mastery of instructional techniques (掌握技巧)
  - c. Resourcefulness (充實內容)
  - d. Self-evaluation (自我評估)

- e. Personal satisfaction (樂在其中)
  - f. Good personal relations with others (人際關係良好)
  - g. Empathy (同理心)
2. Four roles performed by an instructor (教官應做):
- a. Planner (規劃)
  - b. Teacher (教授)
  - c. Manager (計畫)
  - d. Counselor (諮詢)

#### 四、Motivating adult learners (激發學習動機):

1. Define "learning" (學習之定義):

A permanent change in behavior resulting from reinforced practice. (由不斷練習而導至之行爲上的永久改變)

2. Seven factors that effect the learning process(有關學習之

七項要素):

- a. Motivation (動機)
- b. Organization (組織)
- c. Participation (參與)
- d. Confirmation (證實)
- e. Application (應用)

f. Repetition (重複)

g. Individual Difference (個別差異)

五、earning factors (學習環境):

1. The three classroom arrangement

(三種課桌椅擺設方式):

a. Traditional classroom (傳統擺設方式)

b. U-shaped Tables (U型擺設方式)

c. Chevron (分組擺設方式)

2. Conditions which promote a positive learning climate (提

升正面學習氣氛):

a. Before students arrive (開始上課前):

(a). Written communication (歡迎信)

(b). Precourse physical arrangements (前置作業)

\* Room arrangements (座次安排)

\* Equipment, Aids, and Course materials (備妥教  
具)

b. Up on arrival (學生抵達後):

(a). Be there before students arrive. (教官較學生提前抵  
達)

(b). Greet, shake hands, and smile! (致意，握手，微笑)

(c). Direct students to their seats. (引領座位)

(d). Prepare everything needed. (備妥用品)

**c. Beginning the class (課程開始):**

(a). Introduction (大家自我介紹)

(b). Management Official (引見高階長官)

**六、Introduction to job-centered training lesson development**

In sequence the five steps in developing a JCT lesson.

(介紹五項 JCT 之步驟):

1. Select the task (選定科目)

2. Develop and analyze the lesson objective (設定主題)

3. Prepare the end of lesson test (準備試題)

4. Program the lesson (設計內容)

5. Try out and redesign(validate) (測試與評估)

**七、Developing lesson objectives (確立課程目標):**

1. Behavior (行爲): 結訓後應有之表現

2. Conditions (學習情況): 受訓時之表現

3. Proficiency (進步): 達到最基本要求

八、Levels of learning (分層學習):

1. Knowledge (基礎知識)
2. Comprehension (了解)
3. Application (應用)
4. Analysis (分析)
5. Synthesis (混用)
6. Evaluation (評估)

九、Analyzing objectives (目標分析):

1. Essential skills (基礎技能)
2. Essential points of knowledge (基礎知識)
3. Safety precautions (注意安全)
4. Exceptions/unusual conditions (意外狀況)

十、Achievement tests (成就測試)

Characteristics of an Effective test (有效測試之特性):

1. Validity (評價)
2. Objectivity (客觀)
3. Discrimination (分辨程度)
4. Comprehensiveness (符合主題)
5. Usability (介面簡明易用)



6. Reliability (可靠可信度高)

十一、End-of-lesson test (課後測試):

A test designed to measure student accomplishment of lesson objective(s). (設計測試方式)

Written test for specific learning levels (方式):

1.Level 1- Knowledge: Written or oral (筆試或口試)

2.Level 2- Comprehension: Written or oral (筆試或口試)

3.Level 3- Application: Performance required (實做)

十二、Developing interactive instruction (互動式教學)

Advantages (優點):

1. Student centered (以學生為中心)

2. Learning is faster and retention is improved(速度及效能增加)

3. Learn faster by actually doing them (經由實做加快學習)

4. Student get feedback from the instructor (由教官處獲得回饋)

5. Motivation is increased (增強學習動機)

6. Provides a means of evaluating of instruction (提供評估辦法)

Various types of interactive items (互動方式):

1. Oral questions (口頭問答)
2. Response items (回應項目)
3. Worksheets (作業練習)
4. Lab guides (實做指導)
5. Study assignments (指定閱讀)
6. Any other activity requiring active participation (其他)

十三、Developing instructional aids (完成準備教具)

Partial list of training aids (教具如..):

Actual equipment (具體設置):

1. Bulletin boards (黑、白版)
2. Photographs (照片)
3. Cassette tape (錄影帶)
4. Records (唱片)
5. Closed circuit TV (閉路電視)
6. Slides (幻燈片)
7. Computer-assisted instruction (電腦輔助)
8. Simulators (模擬機)

9. Models (模型)

10. Tapes (錄音帶)

11. Maps (地圖)

12. Pointer (雷射筆)

13. Others (其他)

Purposes for using training aids (使用教具之目的):

1. Teach more and save time (科技化及省時)
2. Trainee remembers longer (學員易記憶)
3. Holds student interest (維持學員學習興趣)
4. More accurate learning (能更正確的學習)

Characteristics of effective visual aids (視覺教具)

1. Manageable (使用容易)
2. Relevant (相關連)
3. Simple (簡易)
4. Colorful (多色彩)
5. Legible (易讀易懂)
6. Accurate (精確)
7. Durable (記憶時效長)

#### 十四、Classroom instructional methods (課堂教授之方法)

##### Lecture (講授):

1. Introduce new material (介紹新知)
2. Describe or summarize ideas (敘述或傳授概念)
3. Supplement other methods of instruction (提供其他方法)

##### Instructor responsibilities for lecture method (教官講授應具備):

1. Preparation (課前準備)
2. Delivery (傳授)
3. Training (訓練)
4. Enthusiasm (熱心)

##### Instructor responsibilities for discussion (課堂討論應具備):

1. Cooperation (合作)
2. Interest (興趣)
3. Thinking (思考)
4. Experience (經驗)
5. Self-expression (自我表達能力)

Questioning: A teaching technique (發問：一種教學技

巧)

Types of questions (提問種類)

1. Rhetorical (反問)
2. Factual (證據)
3. Leading (導引)
4. Question (提問)

Questioning techniques (提問技巧)

1. Overhead questions (向非特定學員提問)
2. Reserve question (反問而非直接給答案)
3. Relay question (將某學員之提問交由全體學員回答)
4. Direct question (向某特定學員提問)
5. “APPLE” Technique (APPLE 技巧):
  - a. Ask a question (提出問題)
  - b. Pause (暫停以便學員思考)
  - c. Pick one student by name (指明某學員回答)
  - d. Listen (聽取答案)
  - e. Evaluate (決定正確與否並強調正確之答案)

## 十五、Lesson planning (課程計畫)

A carefully developed plan designed to standardize and provide for effective and efficient instruction by all instructors. (好的課程計畫，將使得..)

1. Makes teaching easier (教學更容易)
2. Ensures good learning sequence (更能循序漸進)
3. Ensures presentation of all essential elements (包含所有元素)
4. Helps budget time (節省時間)
5. Gives instructor confidence (教官更易建立信心)

## 十六、Demonstration/Performance techniques (示範/表現之技巧)

### Demonstration/Performance steps (示範/表現之步驟)

#### Demonstration and explanation (示範與說明)

1. Demonstrate part task or whole task(示範部份或全部之方法)
2. Perform task slowly and in logical order (緩慢合理的示範)
3. Simultaneous showing and telling (同步示範及講解)
4. Ensure that all students can see demonstration(確保每

位學員均可看清示範)

5. Demonstrate only one method (一次只示範一種方法)
6. Emphasize key points and safety (強調重點及安全)
7. Ask questions to check student understanding(提問以檢查學員了解程度)
8. Finish with a summary and invite student questions (做結論並邀請學員發問)

Observing Lab practice (教官於教導學員時做時應..):

1. Give full attention and concentration 付出完全的注意力與專注力)
2. Position yourself properly (將自己放對位置，能觀察清楚卻不會干擾到學員)
3. Be attentive to all student behaviors (關注每一位學員)
4. Avoid creating distraction(避免製造分散注意力之事情)
5. Model performance-enhancing behaviors (專注且專業並注意學員安全)
6. Exercise good judgment(訓練自己有好的判斷能力)

Coaching student practice (教導學員練習應..):

1. Focus on written standards (集中焦點於建立標準)
2. Use constructive correction (提供建設性的改進建言)
3. Avoid unnecessary interference (避免不必要的中斷)
4. Provide positive reinforcement (提供正向的鼓勵)
5. Maintain effective interpersonal communication (保持良好的溝通並記住要求合於標準而非完美)

十七、Demonstration/performance requirements (示範/表現需求)

Conducting a Lab evaluation (實施實習評分時應..):

1. Prepare yourself, the Lab, the student(準備好自己、實習教室、學員)
2. Observe student performance (觀察學員表現)
3. Take notes (做紀錄)

Types of rating scales (評分表之種類應具備..):

1. Checklist (檢查表單)
2. Numerical (數據化)
3. Descriptive or verbal (須有文字敘述優劣或評定等級)



## 十八、Guidelines for 50-minute classroom presentation

(50 分鐘課堂授課注意事項)

### Purpose (目的):

This activity provides you with the opportunity to conduct a lesson you may be teaching in your facility.

(此項科目教導練習如何準備一堂 50 分鐘的課程)

### Procedure (程序):

1. Each student will prepare and conduct a 50-minute classroom presentation for the class.

(每位學員學習準備一堂 50 分鐘之課程並講授)

2. Select a lesson from the list provided by your instructor.

(選定一項清單上教官指定之科目)

3. You will be provided all lesson plan materials to prepare and conduct the training. Make a photocopy of the materials you will need to begin personalizing the lesson.

(教官將提供所有你所需之材料以供教學之用，

應先將所有材料拍照並備妥準備使用)

4. Develop transparencies and handouts that support your lesson and conform to IIT Standards.

(製作清晰指標並令其符合 IIT 標準)

### Requirements (要求):

1. Your lesson plan must contain appropriate interactive elements: Lesson objectives, Oral questions, visual aids, a worksheet, an Interim summary, a Final summary, and an End-of-lesson

test.

(你的課程內容必須包含：適當之師生互動、課程主題、口頭問答、視覺輔助、作業練習、中程結論、最後總結及考試)

2. You must complete delivery of the entire lesson in 50 minutes, plus or minus 10 minutes.

(請於 50 分鐘內完成，不可超過或不足 10 分鐘)

捌、自行製作之課程簡報檔，(供日後查閱或教學之需)

請參閱附件四

玖、心得與建議

這真的是一次難得又幸運的機會，能於報名截止前一天奉派至美國 FAA 學院接受「10502 教官培訓（國際班）」之訓練。

其間手忙腳亂的結匯繳交報名費、填寫報名單據等瑣碎事情均能於短短一兩天之內完成。完全依賴總台業務室、人事室、總務室及大局航管組等相關單位可愛的同仁們鼎力相助，在此要先行道謝！在國家經費困難的情況下，筆者仍能以公費出國接受此一受益良多之訓練，無論如何只能說心存感激了！下面就全部行程及課程作一簡要之心得報告，希望能對往後須前往 FAA 受訓之同仁能有所助益。

來回共四天的轉機行程辛苦自不在話下，美國刻意安排 FAA 及其他公家單位（如郵政總局及軍方基地）設立於 Oklahoma 州

用意即在為該州多帶來些收入；此舉卻苦了所有參訓的學員們，大家漂洋過海還不夠，仍要一轉再轉的搭機才可怕！相信曾經去過或經常長途旅行的同仁必能心領神會。

課程本身充滿持續不斷的壓力，就本次參訓學員而言，日本（兩位）、韓國（三位）、台灣（一位）等共計六位亞洲人。阿根廷（兩位）與克魯索（兩位）則屬西班牙語系國家，以英語程度而言；僅是聽懂即屬不易，本課程卻要持續不斷的上台做講授與報告。同學們之間均非常努力用功，深怕被別人比了下去！日本管制員福原和子高中時曾至美國交換學生一年、筆者則是英語系畢業，在溝通能力上稍佔便宜，但若論及準備授課的內容，那可是一點也馬虎不得，每位學員均有精采之演出，讓教官及其他學員們大開眼界、收穫頗豐！尤其是課程結束後，筆者有些非常深的感觸；就是說不論大家原本的專長為何；但若以英語及電腦（至少要會 office）來說；於今日號稱地球村的時代，這兩樣生活上的「基本功」若是沒學好，其實已不太能在地球村存活矣！整個學程中英語就不必再強調了，電腦呢？Word 與 Powerpoint 幾乎每日都要在撰寫教案及課堂教授時用到。不會？豈不是在“世界各國”面前丟臉嗎？呵呵！十位學員中，筆者發覺職務上僅單純擔任管制員者，電腦使用能力普遍不如擔任過行政或教育訓練

單位職務者。這點與我們全體管制員共勉，多學一些新事務絕對是好事，怎知哪天不就派上用場了不是嗎？

既是國際班；「參訪」亦是本班重要課程，FAA 學院內的單位共參訪了三處，首先是塔台模擬機：三面螢幕接合，不論是車輛或飛機，共可產生十一個目標；操作需教官一名，實習教官與學員各數名。整體之觀感覺得僅能算實用，並無最佳之臨場感！

接著是 ATN (Aviation Training Network) 中心，計有兩種教學模式：遠距 (衛星) 與電腦教學 (CBI – Computer Based Instruction)，遠距 (衛星) 顧名思義不適用於我國；電腦教學 CBI 則相對非常適合我們訓練單位學習和利用；其教育訓練中心製作分門別類之教學光碟後，再寄達所有飛航服務單位供當地教育訓練之用！可免大家舟車勞頓之苦同時又能及時傳達最新訊息或最新規定。期細心處仔細到光碟版本以不同顏色區分、寄出前以各型電腦各版本軟體均先行測試過，可確保使用單位可接手後馬上利用，不會發生各式軟硬體上的問題，以確保時效！

最後是重頭戲參訪州政府：一行教官學員十二人盛裝親訪州政府並與副州長會面！副州長 **Mary Fallin** 女士親切熱情，自己帶頭四處介紹府內值得參觀處，身邊助理及安全人員則寸步不離 (該州曾發生聯邦大樓爆炸案)。當她聽聞筆者來自台灣時，立

即高興說到 **Oklahoma** 市（州政府所在地）與台北市為姊妹市！  
筆者亦特別邀請她能親訪台灣。會面後副州長親自頒發全體學員  
們榮譽副州長證書並由府內攝影師一一為大家拍照留念。

這次美國行適逢 911 事件發生週年，在通過機場及重要單位  
時，安檢均非常繁複仔細（全身金屬檢測、脫鞋、翻箱倒櫃等已  
屬常態）。但在 **FAA** 學院內或平日出門至社區、賣場等生活圈中  
則可感受到 **Oklahoma** 人其實非常平易近人，待人接物均非常親  
切和善，有種鄉下人的純樸可愛感覺。更絕少種族間的隔閡感  
（**Oklahoma** 州有全美最大印地安保留區）！

至於上課之外的食衣住行育樂則是苦樂參半，一言難盡！也  
許往後能給要去 **FAA** 受訓同仁做個參考吧。

聯邦大樓被炸後，原址成立了紀念館。大片水池倒映著紀念  
碑；圍牆掛滿失去家人後親人們送來的玩具、照片、紀念品等（當  
時大樓內設有員工幼稚園，死傷了許多小朋友）！讓人覺得無論  
何種暴力行爲吾人都該予以譴責，因為小孩何辜呢？

#### 壹拾、結語

跑這一趟很辛苦、返國後旅費報支繁瑣、寫報告很吃力（翻譯與  
製作 **POWERPOINT** 耗時費力），但是親自體驗了 **FAA** 的課程、也  
見識到在全球飛航服務界展現巨大影響力的 **FAA**。

首次在國外上課、生活了這麼久、在各方面學習了以往不曾經歷過的了！這一切就都值得了！至少以後單位的授課就可以不必土法煉鋼，我們也能夠有條理的傳授專業技能，對日後的學員肯定會有幫助。

期望能有機會將這套學習過程分享給後進的教官，當然更希望能有機會讓更多的同仁赴美國民航學院學習課堂傳授的技巧，如此將可使我民航界的教學層次更上層樓。至於所攜回之各項資料亦歡迎與所有同仁閱讀參考。

各項附件如後：

附件一：HONORARY LT. GOVERNOR STATE OF OKLAHOMA

(奧克拉荷馬州榮譽副州長證書)

HONORARY LT. GOVERNOR  
STATE OF  
OKLAHOMA

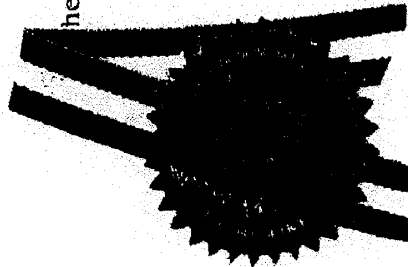
To All To Whom These Presents Shall Come, Greetings:  
Witness ye, That in faith and confidence and in recognition of devoted and loyal service

*Yu Kun*

has been appointed by me and hereby commissioned an

HONORARY LT. GOVERNOR  
OF THE STATE OF OKLAHOMA

hereby entitled to all of the privileges pertaining to this commission.



In Testimony Whereof, I have set my hand  
and seal this *1<sup>st</sup>* day of *September*, *2003*

*Mary Fallin*



MARY FALLIN, LIEUTENANT GOVERNOR  
OF THE GREAT STATE OF OKLAHOMA

附件二：FAA ACADEMY CERTIFICATE OF TRAINING (1)

(美國聯邦航空總署結業證書 1)

U.S. DEPARTMENT OF TRANSPORTATION

**Federal Aviation Administration**



This is to certify that

**YU KUN**

has satisfactorily completed the

INTERNATIONAL INSTRUCTOR TRAINING

conducted by the

**FAA Academy**

SEPTEMBER 25, 2003

Date

*William C. Taylor*

Superintendent, FAA Academy





CERTIFICATE OF TRAINING AND OFFICIAL PERSONNEL RECORD (2)

(完訓及格證書 2)

Certificate of Training and Official Personnel Record		Date of Issuance 03-09-23
Course/Examination Number and Title 10502 INTERNATIONAL INSTRUCTOR TRAINING		Hours 136
Requirements for Certificate A COURSE GRADE OF PASS DENOTES ACHIEVEMENT, DEMONSTRATED IN A TRAINING ENVIRONMENT, OF THE INSTRUCTIONAL OBJECTIVES. I.E., HAS MET THE COURSE PERFORMANCE STANDARDS.		Grade PASS
Course/Examination Description or Remarks		
Name/Routing Symbol/Address KUN, YU		Social Security Number
		Type of Course/Examination RESIDENT
		Region Training Organization FAA ACADEMY
AC Form 3900-16 (2/88) Issn 0052-00-994-9038 Supersedes previous editions		Student Copy

**CERTIFICATE OF TRAINING**

YU KUN

has satisfactorily completed

INTERNATIONAL INSTRUCTOR TRAINING

awarded by the

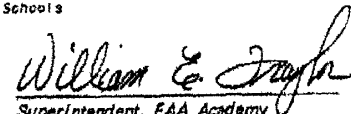
**FAA ACADEMY**

Oklahoma City, Oklahoma

Accredited by the North Central Association  
of Colleges and Schools

SEPTEMBER 23, 2003

Date of Completion



Superintendent, FAA Academy

附件三：

***COURSES NAME INTERNATIONAL INSTRUCTOR TRAINING***

***COURSE NUMBER 10502***

***WEEK 1***

**A. CLASS SCHEDULE**

	<b><i>DAY1</i></b>	<b><i>DAY2</i></b>	<b><i>DAY3</i></b>	<b><i>DAY4</i></b>	<b><i>DAY5</i></b>	
-1-	<b>Introduction</b>  <b>(1 hr)</b>	<b>5-Minute Presentations</b>  <b>(Native Language)</b>  <b>(4 hrs)</b>	<b>Characteristics Of Effective Instruction</b>  <b>(3 hrs)</b>	<b>Workshop For 10-Minute Presentations</b>  <b>(2 hrs)</b>	<b>Introduction To Lesson Development</b>  <b>(1 hr)</b>	
-2-	<b>Superintendent's Briefing</b>  <b>(1 hr)</b>				<b>Motivating Adult Learners</b>  <b>(1 hr)</b>	<b>10-Minute Presentations</b>  <b>(2 hrs)</b>
-3-	<b>Overview</b> <b>(0.5hr)</b>					
-4-	<b>Job-Centered Training</b>  <b>(1.5hrs)</b>					
<b>LUNCH</b>						
-5-	<b>Organizing For Presentations</b>  <b>(2 hrs)</b>	<b>Aeronautical Center</b>  <b>Familiarization</b>  <b>(4 hrs)</b>	<b>Motivation Adult Learners</b>  <b>(Cont'd)</b> <b>(2hrs)</b>	<b>10-Minute Presentations</b>  <b>(Cont'd)</b>  <b>(2 hrs)</b>	<b>Objectives Workshop</b>  <b>(2 hrs)</b>	
-6-						
-7-	<b>Preparation For 5-Minute Presentations</b>  <b>(2 hrs)</b>			<b>Learning Factors</b>  <b>(2 hrs)</b>		<b>Objectives Presentations</b>  <b>(2 hrs)</b>
-8-						

**COURSES NAME INTERRATIONAL INSTRUCTOR TRAINING**

**COURSE NUMBER 10502**

**WEEK 2**

**B. CLASS SCHEDULE**

	<b><u>DAY6</u></b>	<b><u>DAY7</u></b>	<b><u>DAY8</u></b>	<b><u>DAY9</u></b>	<b><u>DAY10</u></b>
-1-	<b>Analyzing Objectives</b>  <b>(3 hrs)</b>	<b>End-Of-Lesson Test</b>  <b>(3 hrs)</b>	<b>Instructional Aids</b> <b>(1.5 hrs)</b>	<b>15-Minute Presentations</b>  <b>(4 hrs)</b>	<b>30-Minute Classroom Presentations</b>  <b>Workshop</b>  <b>(4 hrs)</b>
-2-			<b>Instructional Aids Workshop</b>  <b>(1 hr)</b>		
-3-			<b>Classroom Instructional</b>		
-4-	<b>A/O Workshop</b>  <b>(1 hr)</b>	<b>ELT Workshop</b>  <b>(1 hr)</b>	<b>Methods</b>  <b>(1.5 hrs)</b>		
<b>LUNCH</b>					
-5-	<b>A/O Workshop (Cont'd)</b> <b>(1 hrs)</b>	<b>Developing Response Items</b>  <b>(3 hrs)</b>	<b>Instructional Methods (Cont'd)</b>  <b>(1 hrs)</b>	<b>Lesson Planning</b>  <b>(4 hrs)</b>	<b>Presentation Workshop (Cont'd)</b>  <b>(4hrs)</b>
-6-	<b>Achievement Test</b>  <b>(3 hrs)</b>				
-7-		<b>Response Items Workshop</b>  <b>(4 hrs)</b>	<b>15-Minute Presentation</b>  <b>Workshop</b>  <b>(3 hrs)</b>		
-8-					

***COURSES NAME INTERNATIONAL INSTRUCTOR TRAINING***

***COURSE NUMBER 10502***

***WEEK 3***

***C. CLASS SCHEDULE***

	<b><i>DAY11</i></b>	<b><i>DAY12</i></b>	<b><i>DAY13</i></b>	<b><i>DAY14</i></b>	<b><i>DAY15</i></b>	
-1-	<b>30-Minute Classroom Presentations</b>	<b>Demo/ Performance Techniques</b>	<b>Demo/ Performance Workshop</b>	<b>Assignment  50-Minute  Technical Lesson</b>	<b>50-Minute  Technical Lesson Workshop</b>	
-2-						
-3-		<b>(3 hrs)</b>	<b>Demo/ Performance Presentations</b>	<b>50-Minute Technical Lesson Workshop</b>	<b>(Cont'd)</b>	
-4-		<b>Demo/Perfor mance Requirement s</b>				<b>(4 hrs)</b>
<b>LUNCH</b>						
-5-	<b>30-Minute Presentations  (Cont'd)</b>	<b>Demo/ Performance</b>	<b>Demo/ Performance</b>	<b>50-Minute</b>	<b>50-Minute</b>	
-6-		<b>Requirement s (Cont'd) (1 hr)</b>	<b>Presentations  (Cont'd)</b>	<b>Technical</b>	<b>Technical</b>	
		<b>Demo/ Performance</b>		<b>Lesson</b>	<b>Lesson</b>	
-7-		<b>Workshop</b>		<b>Workshop</b>	<b>Workshop</b>	
-8-	<b>(4 hrs)</b>	<b>(3 hrs)</b>	<b>(4 hrs)</b>	<b>(4 hrs)</b>	<b>(4 hrs)</b>	

**COURSES NAME INTERNATIONAL INSTRUCTOR TRAINING**

**COURSE NUMBER 10502**

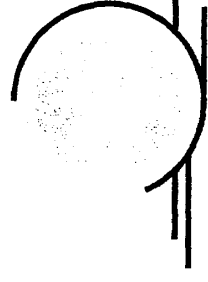
**WEEK 4**

**D. CLASS SCHEDULE**

	<i>DAY16</i>	<i>DAY17</i>	<i>DAY</i>	<i>DAY</i>	<i>DAY</i>
-1-	<b>50-Minute Technical Lesson Presentations  (4 hrs)</b>	<b>50-Minute</b>			
-2-		<b>Technical</b>			
-3-		<b>Lesson</b>			
-4-		<b>Presentations</b>	<b>Presentations</b>		
		<b>(Cont'd)</b>			
		<b>(4 hrs)</b>			
<b>LUNCH</b>					
-5-	<b>50-Minute Technical Lesson Presentations  (Cont'd)  (4 hrs)</b>	<b>50-Minute</b>			
-6-		<b>Technical</b>			
-7-		<b>Lesson</b>			
-8-		<b>Presentations</b>	<b>Presentations</b>		
		<b>(Cont'd)</b>			
		<b>(3 hrs)</b>			
		<b>Graduation And Critique</b>			
		<b>(1 hr)</b>			

# 附件四

## 自行製作之簡報檔



一、A programmed course on programmed instruction  
(學習如何設計一堂有組織、有計畫的課程)

Principles of programmed instruction (原則)

1. Small steps (減緩進度)
2. Active student response (鼓勵回應)
3. Immediate confirmation (及時肯定)
4. Students learn at their own pace  
(由學員本身調整學習速度)

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Principles used in job-centered training  
(JCT)

1. Small steps (減緩進度)
2. Active student response (鼓勵回應)
3. Immediate confirmation (及時肯定)

JCT  
Definition(定義):

A system of course design and instruction  
tailored to the specific needs of students  
who will perform a particular job.

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Characteristics (特性) :

1. Job-oriented (工作導向)
2. Well-defined objectives (明確定義主題)
3. High student achievement (高學員完成率)
4. Standardized instructional content  
(教學內容標準化)

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5. Controlled pacing and responding  
(控制步調與反應)
6. Optimum step size (強調合宜的步伐)
7. Student-centered (以學員為中心)
8. Knowledge of Results (導出結論)
9. Active student participation  
(激勵參與感)

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## 二、Organizing for presentation

Communication (溝通) :

The transference of thought or Feeling through speech, gestures, posture, facial expression, and tone and quality of voice.

Parts of Presentation (組成元件) :

1. Introduction (介紹)
  - Purpose: Prepare the audience.  
(準備妥當)
  - Tells Why, What, and How.  
(告知因何，如何，為何)

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### 2. Body (主體)

- Purpose: Accomplish desired outcomes specified in the introduction.  
(達成明確告知主題)
- Includes essential material.  
(包含基礎題材)

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3. Summary/Conclusion (結尾)

- Purpose: Ensure learning/communication has occurred. (確定達成學習及溝通)
- Review of Main Points. (複習重點)
- Closure (作結尾)

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Organizing a presentation (設計一次教學) :

1. Analyze the Situation (分析情況)
2. Determine Objective (決定主題)
3. Plan the Body (規劃主體)
4. Plan the Summary (設計結尾)
5. Plan the Introduction (完成全案)
6. Tryout/Revise (試教與修正)

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三、Characteristics of effective instruction  
(有效教學之特性)

Using class notes and handouts, you will be able to identify: (利用註記與標示來完成)

1. Seven qualities desired of an effective instructor:

- Subject mastery (掌控主題)
- Mastery of instructional techniques (掌握技巧)
- Resourcefulness (充實內容)
- Self-evaluation (自我評估)

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- Personal satisfaction (樂在其中)
- Good personal relations with others (人際關係良好)
- Empathy (同理心)

2. Four roles performed by an instructor

(教官應做) :

- Planner (規劃)
- Teacher (教授)
- Manager (計畫)
- Counselor (諮詢)

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四、Motivating adult learners

(激發學習動機) :

1. Define "learning" (學習之定義) :

A permanent change in behavior  
resulting from reinforced practice.

(由不斷練習而導至之行為上的永久改變)

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2. Seven factors that effect the learning process (有關學習之七項要素) :

- Motivation (動機)
- Organization (組織)
- Participation (參與)
- Confirmation (證實)
- Application (應用)
- Repetition (重複)
- Individual Difference (個別差異)

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五、earning factors (學習環境) :

1. The three classroom arrangement

(三種課桌椅擺設方式) :

- Traditional classroom  
(傳統擺設方式)
- U-shaped Tables  
(U型擺設方式)
- Chevron  
(分組擺設方式)

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2. Conditions which promote a positive

learning climate (提升正面學習氣氛) :

- Before students arrive (開始上課前) :
  - Written communication (歡迎信)
  - Precourse physical arrangements (前置作業)
    - \* Room arrangements (座次安排)
    - \* Equipment, Aids, and Course materials (備妥教具)

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• Up on arrival (學生抵達後) :

- Be there before students arrive.  
(教官較學生提前抵達)
  - Greet, shake hands, and smile!  
(致意, 握手, 微笑)
  - Direct students to their seats. (引領座位)
  - Prepare everything needed. (備妥用品)
- Beginning the class (課程開始) :
- Introduction (大家自我介紹)
  - Management Official (引見高階長官)

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六、Introduction to job-centered training  
lesson development

In sequence the five steps in developing  
a JCT lesson. (介紹五項JCT之步驟)：

1. Select the task (選定科目)
2. Develop and analyze the lesson objective  
(設定主題)
3. Prepare the end of lesson test (準備試題)
4. Program the lesson (設計內容)
5. Try out and redesign(validate) (測試與評估)

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七、Developing lesson objectives  
(確立課程目標)：

1. Behavior (行為)：結訓後應有之表現
2. Conditions (學習情況)：受訓時之表現
3. Proficiency (進步)：達到最基本要求

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八、Levels of learning (分層學習)：

1. Knowledge (基礎知識)
2. Comprehension (了解)
3. Application (應用)
4. Analysis (分析)
5. Synthesis (混用)
6. Evaluation (評估)

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九、Analyzing objectives (目標分析) :

1. Essential skills  
(基礎技能)
2. Essential points of knowledge  
(基礎知識)
3. Safety precautions  
(注意安全)
4. Exceptions/unusual conditions  
(意外狀況)

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十、Achievement tests (成就測試)

Characteristics of an Effective test

(有效測試之特性) :

1. Validity (評價)
2. Objectivity (客觀)
3. Discrimination (分辨程度)
4. Comprehensiveness (符合主題)
5. Usability (介面簡明易用)
6. Reliability (可靠可信度高)

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十一、End-of-lesson test (課後測試) :

A test designed to measure student accomplishment of lesson objective(s).  
(設計測試方式)

Written test for specific learning levels (方式) :

1. Level 1- Knowledge: Written or oral  
(筆試或口試)
2. Level 2- Comprehension: Written or oral  
(筆試或口試)
3. Level 3- Application: Performance required  
(實做)

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十二、Developing interactive instruction  
(互動式教學)

Advantages (優點) :

1. Student centered (以學生為中心)
2. Learning is faster and retention is improved (速度及效能增加)
3. Learn faster by actually doing them (經由實做加快學習)
4. Student get feedback from the instructor (由教官處獲得回饋)
5. Motivation is increased (增強學習動機)
6. Provides a means of evaluating of instruction (提供評估辦法)

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Various types of interactive items  
(互動方式) :

1. Oral questions (口頭問答)
2. Response items (回應項目)
3. Worksheets (作業練習)
4. Lab guides (實做指導)
5. Study assignments (指定閱讀)
6. Any other activity requiring active participation (其他)

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十三、Developing instructional aids  
(完成準備教具)

Partial list of training aids (教具如..) :

Actual equipment (具體設置) :

1. Bulletin boards (黑、白版)
2. Photographs (照片)
3. Cassette tape (錄影帶)
4. Records (唱片)
5. Closed circuit TV (閉路電視)

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6. Slides (幻燈片)
7. Computer-assisted instruction (電腦輔助)
8. Simulators (模擬機)
9. Models (模型)
10. Tapes (錄音帶)
11. Maps (地圖)
12. Pointer (雷射筆)
13. Others (其他)

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Purposes for using training aids  
(使用教具之目的) :

1. Teach more and save time (科技化及省時)
2. Trainee remembers longer (學員易記憶)
3. Holds student interest (維持學員學習興趣)
4. More accurate learning (能更正確的學習)

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Characteristics of effective visual aids  
(視覺教具)

1. Manageable (使用容易)
2. Relevant (相關連)
3. Simple (簡易)
4. Colorful (多色彩)
5. Legible (易讀易懂)
6. Accurate (精確)
7. Durable (記憶時效長)

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十四、Classroom instructional methods  
(課堂教授之方法)

Lecture (講授) :

1. Introduce new material  
(介紹新知)
2. Describe or summarize ideas  
(敘述或傳授概念)
3. Supplement other methods of instruction (提供其他方法)

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Instructor responsibilities for lecture method (教官講授應具備) :

1. Preparation (課前準備)
2. Delivery (傳授)
3. Training (訓練)
4. Enthusiasm (熱心)

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Instructor responsibilities for discussion  
(課堂討論應具備) :

1. Cooperation (合作)
2. Interest (興趣)
3. Thinking (思考)
4. Experience (經驗)
5. Self-expression (自我表達能力)

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Questioning: A teaching technique

(發問：一種教學技巧)

Types of questions (提問種類)

1. Rhetorical (反問)
2. Factual (證據)
3. Leading (導引)
4. Question (提問)

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Questioning techniques (提問技巧)

1. Overhead questions  
(向非特定學員提問)
2. Reserve question  
(反問而非直接給答案)
3. Relay question  
(將某學員之提問交由全體學員回答)
4. Direct question  
(向某特定學員提問)

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5. "APPLE" Technique (APPLE技巧) :

- Ask a question (提出問題)
- Pause (暫停以便學員思考)
- Pick one student by name (指明某學員回答)
- Listen (聽取答案)
- Evaluate (決定正確與否並強調正確之答案)

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十五、Lesson planning (課程計畫)

A carefully developed plan designed to standardize and provide for effective and efficient instruction by all instructors.

(好的課程計畫，將使得..)

1. Makes teaching easier (教學更容易)
2. Ensures good learning sequence (更能循序漸進)
3. Ensures presentation of all essential elements (包含所有元素)
4. Helps budget time (節省時間)
5. Gives instructor confidence (教官更易建立信心)

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十六、Demonstration/Performance techniques

(示範/表現之技巧)

Demonstration/Performance steps

(示範/表現之步驟)

Demonstration and explanation (示範與說明)

1. Demonstrate part task or whole task (示範部份或全部之方法)
2. Perform task slowly and in logical order (緩慢合理的示範)
3. Simultaneous showing and telling (同步示範及講解)

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4. Ensure that all students can see demonstration (確保每位學員均可看清示範)

5. Demonstrate only one method (一次只示範一種方法)

6. Emphasize key points and safety (強調重點及安全)

7. Ask questions to check student understanding (提問以檢查學員了解程度)

8. Finish with a summary and invite student questions (做結論並邀請學員發問)

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Observing Lab practice (教官於教導學員時做時應..)

1. Give full attention and concentration  
(付出完全的注意力與專注力)
2. Position yourself properly (將自己放對位置，能觀察清楚卻不會干擾到學員)
3. Be attentive to all student behaviors  
(關注每一位學員)
4. Avoid creating distraction  
(避免製造分散注意力之情事)
5. Model performance-enhancing behaviors  
(專注且專業並注意學員安全)
6. Exercise good judgment  
(訓練自己有好的判斷能力)

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Coaching student practice  
(教導學員練習應..) :

1. Focus on written standards  
(集中焦點於建立標準)
2. Use constructive correction  
(提供建設性的改進建言)
3. Avoid unnecessary interference  
(避免不必要的中斷)
4. Provide positive reinforcement  
(提供正向的鼓勵)
5. Maintain effective interpersonal communication  
(保持良好的溝通並記住要求合於標準而非完美)

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十七、Demonstration/performance requirements  
(示範/表現需求)

Conducting a Lab evaluation  
(實施實習評分時應..) :

1. Prepare yourself, the Lab, the student  
(準備好自己、實習教室、學員)
2. Observe student performance  
(觀察學員表現)
3. Take notes  
(做紀錄)

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Types of rating scales  
(評分表之種類應具備..) :

1. Checklist (檢查表單)
2. Numerical (數據化)
3. Descriptive or verbal  
(須有文字敘述優劣或評定等級)

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十八、Guidelines for 50-minute classroom presentation  
(50分鐘課堂授課注意事項)

Purpose (目的) :

This activity provides you with the opportunity to conduct a lesson you may be teaching in your facility

(此項科目教導練習如何準備一堂50分鐘的課程)

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Procedure (程序) :

1. Each student will prepare and conduct a 50-minute classroom presentation for the class.  
(每位學員學習準備一堂50分鐘之課程並講授)
2. Select a lesson from the list provided by your instructor.  
(選定一項清單上教官指定之科目)

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1. You will be provided all lesson plan materials to prepare and conduct the training. Make a photocopy of the materials you will need to begin personalizing the lesson.  
(教官將提供所有你所需之材料以供教學之用，應先將所有材料拍照並備妥準備使用)
2. Develop transparencies and handouts that support your lesson and conform to IIT Standards.  
(製作清晰指標並令其符合IIT標準)

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Requirements (要求) :

1. Your lesson plan must contain appropriate interactive elements: Lesson objectives, Oral questions, visual aids, a worksheet, an Interim summary, a Final summary, and an End-of-lesson test.  
(你的課程內容必須包含：適當之師生互動、課程主題、口頭問答、視覺輔助、作業練習、中程結論、最後總結及考試)
2. You must complete delivery of the entire lesson in 50 minutes, plus or minus 10 minutes.  
(請於50分鐘內完成，不可超過或不足10分鐘)

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