Further Educational Project

- HISTORY OF CIVIL AVIATION
- TRAINING IN KOREA
- CURRENT ISSUES
- FUTURE PROJECT
In the 2030s, *Nanobots* in our brains will make us ‘Godlike’

“In the 2030s,” said Ray, “we are going to send nano-robots into the brain (via capillaries) that will provide full immersion virtual reality from within the nervous system and will connect our neocortex to the cloud. Just like how we can wirelessly expand the power of our smartphones 10,000-fold in the cloud today, we’ll be able to expand our neocortex in the cloud.”
KAU has played a very important role in the history of Korea’s aviation and aerospace industry since its creation on 1952.
Korea Aerospace University: History of Civil Aviation Training in

KAU is the Korea’s very first educational institution specialized in aviation and aerospace. The University has trained an ever increasing number of professionals to contribute to the development of nation’s aerospace industry.

These contributions have range from Korea’s very first NARO rocket launching pad to local airports and globally renowned to the latest Unmanned Aerial Vehicles.
1986 Korea’s first flight training center was established at KAU.
1999 Korea's first air traffic controller training institute was designated at KAU.
2006 KAU became the first university in Korea to launch ‘Hanuri #1’, a nanosatellite (Cubesat).
2009 Korea’s first aerospace museum with FAI certification was opened at KAU.
2012 Korea’s first solar-powered UAV successfully flew for 12 hours, a feat repeated every season thereafter.
2013 A reaction wheel for satellite operations was developed at KAU for Korea's first space launch vehicle, NARO.
Flight Training Center
AEROSPACE MUSEUM

History of aviation, motion base simulator, simulator experience hall, 3D center, engine mock-up, and more
AVIATION & AEROSPACE CAMP

For Elementary, Middle and High school students

PILOT, ATC CONTROLLER, DRONE PILOTS

3-5 DAYS
180

“NO JOBS”
Once started, training should be customized to each person to maximize efficiency of training.

**Early Screening**

Should not invest more when you are not qualified.

**Airline customized**

Airline authorized programs

**Selection**

Basic prerequisites, Aptitude test, Personality test, Medical test, Language ability, interviews

We, flight training providers should be responsible for the results of the training programs.
Smart Training is not smart device education, but rather an educational paradigm shift for digital natives.
Classroom Learning

Multimedia-Learning
TV, Radio, CD

E-Learning
Internet PC
LMS

U-Learning
PDA, PMP
M-Learning
VR

SMART Learning
Smart devices
Applications
SNS
Personalized
SMART TRAINING CONCEPT

- Self-directed
- Technology Embedded
- Motivated
- Resource Enriched
- Adaptive

by Ministry of Education, Science and Technology, 2011

Smart education promotion strategy
All we need to do is just introduce the technology
TV or Beam Projector
SMART TRAINING APPLICATIONS

CLOUD

Instructor

Student
Because of corrections caused by friction, the heading indicator may drift from its set position. Among other factors, the amount of drift depends largely upon the condition of the instrument. If the bearings are worn, dirty, or improperly lubricated, the drift may be excessive. Another cause is the heading indicator is caused by the fact that the gyro is located in space, and the Earth rotates in space at a rate of 1/360th of 1° per hour. Thus, disturbing corrections caused by friction, the heading indicator may indicate as much as 1/360th of 1° each time the plane starts.

Since heading indicators refer to an horizontal reference system, the heading indicator (RMI) receives the magnetic north reference from a magnetic rudder transmitter and generally is used to adjust the magnetic rudder transmitter called a magnetometer.

### The Flux Gate Compass System

As mentioned earlier, the lines of flux in the Earth’s magnetic field have two basic characteristics: a magnet aligns with them, and an electrical current is induced, as generated, in any wire caused by them.

The flux gate compass that drives these lines uses the characteristic of current induction. The flux valve is a small, rugged, magnetic ring. As the flux in Figure 9-27, made of soft iron and not normally accept lines of magnetic flux. An electrical signal is wound around each of the three legs to accept the current induced in this ring by the Earth’s magnetic field. A coil wound around the inner space in the center of the frame has 400 milliamps of alternating current (AC) flowing through it. During the times when this current reaches its peak, every during each cycle, there is no much magnetism produced by this coil that the frame cannot accept the lines of flux from the Earth’s field.

![Figure 9-27: Attitude and heading reference system (AHRS)](image)
Students
Challenger 605 Time and Fuel Versus Distance
Risk
During each flight, the single pilot makes many decisions under hazardous conditions. To fly safely, the pilot needs to assess the degree of risk and determine the best course of action to mitigate the risk.

Assessing Risk
For the single pilot, assessing risk is not as simple as it sounds. For example, the pilot acts as his or her own quality control in making decisions. If a fatigued pilot who has flown 16 hours is asked if he or she is too tired to continue flying, the answer may be “no.” Most pilots are good oriented and when asked to accept a flight, there is a tendency to deny personal limitations while adding weight to issues not germane to the mission. For example, pilots of helicopter emergency services (EMS) have been known (more than other groups) to make flight decisions that add significant weight to the patient’s welfare. These pilots add weight to intangible factors (the patient in this case) and fail to appropriately quantify actual hazards, such as fatigue or weather, when making flight decisions. The single pilot who has no other crew member for consultation must wrestle with the intangible factors that draw one into a hazardous position. Therefore, he or she has a greater vulnerability than a full crew.

### Risk Assessment Matrix

<table>
<thead>
<tr>
<th>Likelihood</th>
<th>Severity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improbable</td>
<td>Low</td>
</tr>
<tr>
<td>Remote</td>
<td>Medium</td>
</tr>
<tr>
<td>Occasional</td>
<td>High</td>
</tr>
<tr>
<td>Likely</td>
<td>Critical</td>
</tr>
</tbody>
</table>

**Figure 2-4.** This risk matrix can be used for almost any operation by assigning likelihood and consequence. In the case presented, the pilot assigned a likelihood of occasional and the severity as catastrophic. As one can see, this falls in the high risk area.

cause the pilot to assign “occasional” to determine the probability of encountering D4G.

The following are guidelines for making assignments.

- **Probable**—an event will occur sometime.
- **Occasional**—an event will probably occur sometime.
- **Remote**—an event is unlikely to occur, but is possible.
- **Improbable**—an event is highly unlikely to occur.

Risk
During each flight, the single pilot makes many decisions under hazardous conditions. To fly safely, the pilot needs to assess the degree of risk and determine the best course of action to mitigate the risk.

### Assessing Risk
For the single pilot, assessing risk is not as simple as it sounds. For example, the pilot acts as his or her own quality control in making decisions. If a fatigued pilot who has flown 16 hours is asked if he or she is too tired to continue flying, the answer may be “no.” Most pilots are good oriented and when asked to accept a flight, there is a tendency to deny personal limitations while adding weight to issues not germane to the mission. For example, pilots of helicopter emergency services (EMS) have been known (more than other groups) to make flight decisions that add significant weight to the patient’s welfare. These pilots add weight to intangible factors (the patient in this case) and fail to appropriately quantify actual hazards, such as fatigue or weather, when making flight decisions. The single pilot who has no other crew member for consultation must wrestle with the intangible factors that draw one into a hazardous position. Therefore, he or she has a greater vulnerability than a full crew.

**Figure 2-4.** This risk matrix can be used for almost any operation by assigning likelihood and consequence. In the case presented, the pilot assigned a likelihood of occasional and the severity as catastrophic. As one can see, this falls in the high risk area.

cause the pilot to assign “occasional” to determine the probability of encountering D4G.

The following are guidelines for making assignments.

- **Probable**—an event will occur sometime.
- **Occasional**—an event will probably occur sometime.
- **Remote**—an event is unlikely to occur, but is possible.
- **Improbable**—an event is highly unlikely to occur.
1. PLT309
Which basic flight maneuver increases the load factor on an airplane as compared to straight-and-level flight?
A) Climbs.
B) Turns.
C) Stalls.

2. PLT309
(Refer to figure 2.) If an airplane weighs 2,300 pounds, what approximate weight would the airplane structure be required to support during a 60° banked turn while maintaining altitude?
A) 2,300 pounds.
B) 3,400 pounds.
C) 4,600 pounds.
FLIGHT TRAINING & QUALITY DATA

Flight Data
Evaluation results
Reasons of the performance
- selection, knowledge
Smart Briefing system
Enable personalized training
On time feedback to each student
Proper lesson assignment
PROGRAM
Training Goal
Syllabus
Evaluation

INSTRUCTOR
SMART Instructor
Digital Natives
School

COOPERATION
Building community
Policy & Support
Infrastructure
EXPECTED BENEFITS

Preparation of our training for digital native students

Providing personalized training

Data based Training
THANK YOU