

# **Korea Aerospace University**

## **Safety Control Guidelines**

May 2011

**General Administration Team**  
**Office of General Administration**

# Message from the President

Playing a pivotal role in the advancement of the aerospace industry, Korea Aerospace University (KAU), established in 1952 and currently celebrating its 59th anniversary in this year, is in an important place in these days as the university prepares to make a new leap to become one of the top world-class educational institutes of aviation and aerospace technologies.

As the university administration is being increasingly departmentalized and specialized, it is necessary for the university's administration system to be developed, and for related regulations to be applied and observed by members of the university.

Being in such a transitional time, it is considered of utmost importance that members, assets and facilities safety be maintained; and safety is an area that requires continuous effort and attention in order to pursue characterization and globalization through the university's growth.

Thus, by defining the university's safety standard, accidents can be prevented and safety-related issues dealt with appropriately. As the university's safety control guidelines are established with the goal of protecting life and maintaining and preserving university assets, they apply to all university employees, students, visitors, facilities and other equipment.

In conclusion, I offer my gratitude for the hard work that staff have contributed to the university's advancement and the establishment of these guidelines.

May 2011  
President,  
Korea Aerospace University

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# Chapter I. Safety Control Guidelines Overview

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## 1. Safety Control Guidelines Outline

### 1.1. Purpose

To protect life and maintain and preserve university assets by establishing safety control guidelines for each department of the university, establishing a standard of safety, accident prevention and appropriate yet speedy handling of incidents.

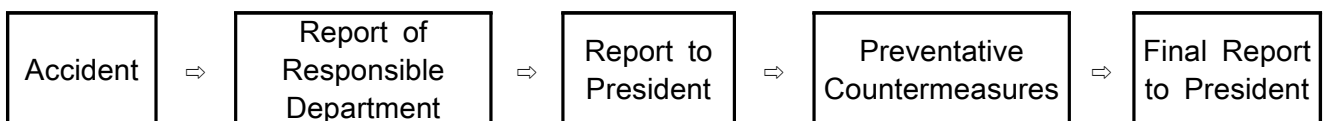
### 1.2. Range of Application

Applies to all university employees, students, visitors, facilities and equipment.

### 1.3. Main Guidelines

Area	Department	Date of Effect
▸ Safety Control Inspection Plan (p.45)	Planning & International Affairs Team	Sep. 30, 2008
▸ Vehicle & Pedestrian Safety Guidelines (p.5) ▸ Fire Prevention & Extinguishing Guidelines (p.7) ▸ Vehicle Safety Guidelines (p.13)	General Administration Team	
▸ Food Safety Guidelines (p.17)	Procurement & Property Management Team	
▸ Student Activity Safety Guidelines (p.20)	Student Affairs Team	
▸ Flight Training Center Safety Guidelines (p.24)	Flight Training Center	
▸ Laboratory Safety Guidelines (p.33)	College of Engineering / Procurement & Property Management Team	
▸ Facility Safety Guidelines (p.38)	College of Engineering / Procurement & Property Management Team	
▸ Information Resource Management Guidelines (p.44)	Information Technology & Services Team	

### 1.4. Safety Control System

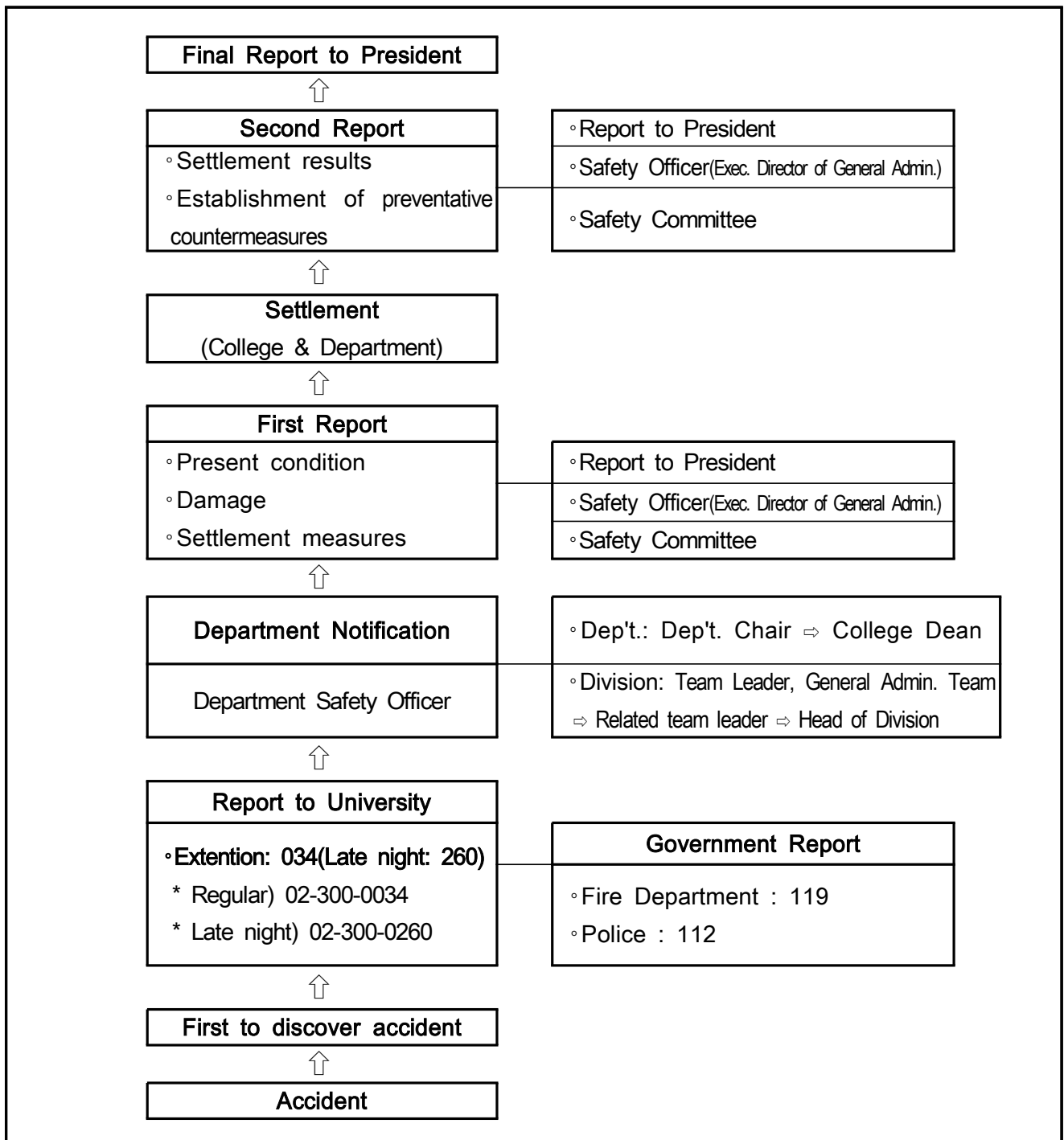


## 2. Accident Report Emergency Contact Network

### 2.1. Summary

To protect life and maintain and preserve university assets through appropriate and speedy handling of incidents by establishing the report system in the event of basic accidents at the university.

### 2.2. Emergency Contact Network Diagram



# Chapter II. Safety Control Guideline Essentials

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## 1. Vehicle & Pedestrian Safety Guidelines

### 1.1. Purpose

To protect precious life and university resources by preventing various types of traffic accidents through establishing vehicle and pedestrian safety regulations for all members of and visitors to the university.

### 1.2. Range of Application

Applies to all university employees, students, other members and visitors.

### 1.3. Vehicle Safety Guidelines

- ① All vehicles must observe a speed limit of 20km/h on university premises and must stop for all pedestrians.
- ② Vehicles must maintain a safe distance when passing pedestrians in established safety zones or narrow roadways.
- ③ All vehicles passing in front of the university's Aerospace Center building must observe a speed limit of 10km/h for the safety of children visiting the Aerospace museum.
- ④ Avoid rails, steel plates, manhole covers, etc. as much as possible, as they can become slippery; slow down if driving over them is inevitable; and never brake suddenly when driving over them.
- ⑤ As rails can become slippery, and stopping distance increases in the rain, reduce speed by 20% and turn on headlights when it's dark, even in the daytime. Also, be careful not to splash when driving on roads with puddles.

### 1.4. Pedestrian Safety Guidelines

- ① Pedestrians must always use sidewalks when available, except when crossing the street, or in other inevitable circumstances when the sidewalk is blocked off for construction, etc.
- ② On roads without sidewalks, pedestrians must walk on the left side and keep to the edge of the road.
- ③ Pedestrians may walk in the middle of the road during ROTC and other military training, or during other student events which involve parading in the street.
- ④ Pedestrians must not pass directly in front of or behind cars, except during student events when police, event staff, etc. direct otherwise.
- ⑤ Pedestrians must not cross the street where it is forbidden by signs, etc.

- ⑥ If it appears that a handicapped or disabled person requires assistance on the street, please take necessary measures to see that they cross the street and reach their destination safely.

### **1.5. Provisions**

Items not expressly addressed in these guidelines are to conform to the Road Traffic Act and other related regulations.

## 2. Fire Prevention and Extinguishing Guidelines

### 2.1. Summary

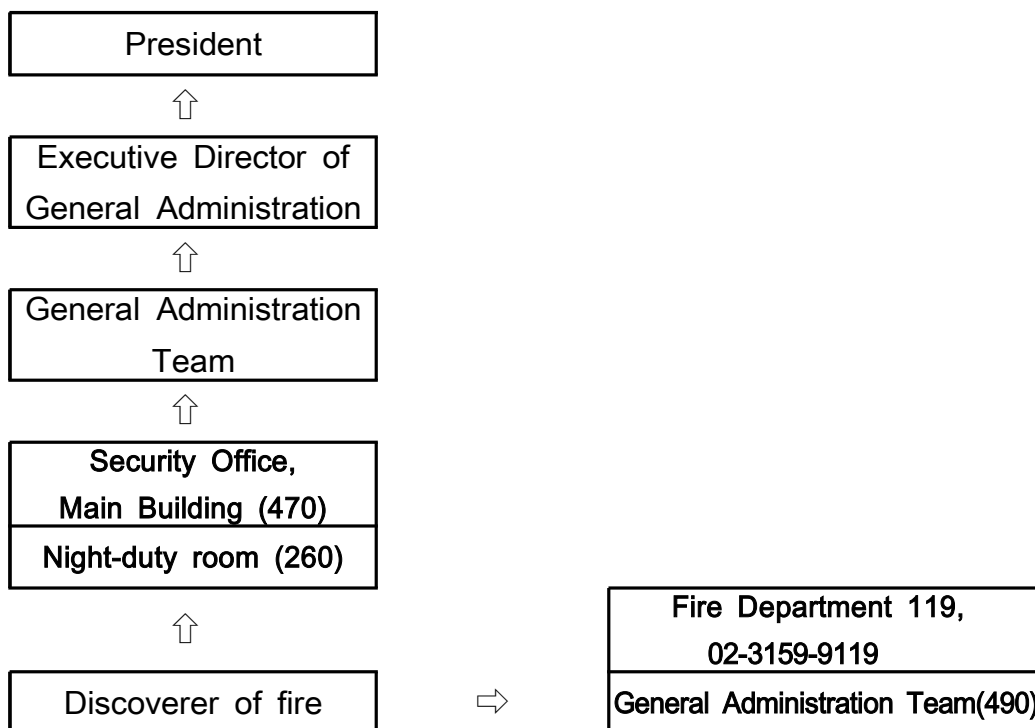
#### 2.1.1. Purpose

To provide an institutional strategy for the active protection of precious life and assets from fire by establishing general guidelines for the prevention and extinguishing of fire, and preventing and squelching fires by putting said guidelines into practice.

#### 2.1.2. Range of Application

Applies to all university employees, students, other members, visitors, facilities and equipment.

#### 2.1.3. Fire Report Diagram





## 2.2. Fire Prevention & Extinguishing Safety Guidelines

### 2.2.1. Definition & Classification of Fires

#### 2.2.1.1. Definition

Fire refers to a disaster which causes damage to things, assets or life through a chain combustion reaction.

#### 2.2.1.2. Classification of Fires: Fires can be classified into 4 levels: A, B, C and D.

- (1) Level A: Refers to average fires, fueled by typical combustibles, namely wood, textiles, paper, rubber, etc., and leaving ashes after extinguished.
  - ⇒ Effectively cooled with water or water-based solution.
- (2) Level B: Refers to oil fires fueled by liquids (gas), and which leave nothing after extinguished.
  - ⇒ Alcohol, petroleum, cooking oil, gas, paint, thinner, etc.; extinguished by suffocation.
- (3) Level C : Also called electrical fire, as it is caused by electricity.
- (4) Level D : Metal fire fueled by magnesium, titanium, or other flammable metals.

### 2.2.2. Types of fire equipment

#### 2.2.2.1 Fire Extinguishing Equipment

The following are the types of equipment used to extinguish fires using water or other extinguishing agents.

- (1) Fire extinguishers
  - ① Types of fire extinguishers
    - Pressurized extinguishers
    - Carbon dioxide extinguishers
    - Halon extinguishers

<Table 1> Examples of when to use each type of fire extinguisher.

Type of Fire	Combustible	Appropriate Extinguisher			
		Water (Hydrant)	ABC Powder Extinguisher	Halon Extinguisher	Dry Sand
Average fire (A)	Paper, textiles, wood	o	o	o	
Oil fire (B)	Oil, paint, solvent, etc.		o	o	
Electric fire (C)	Fires caused by electricity		o	o	
Metal fire (D)	Metals (Mg, Na, K, etc.)				o
Gas fire (E)	LPG, LNG, C2H2		o	o	

<Table 2> How to use each type of fire extinguisher.

Type	Weight	Discharge Time	Discharge Distance
Powder extinguisher (pressurized)	2.5 Kg	11 - 13 sec.	4 - 5 m
	3.3 Kg	11 - 13 sec.	4 - 5 m
	4.5 Kg	12 - 15 sec.	4 - 6 m
	20.0 Kg	25 - 27 sec.	5 - 7 m
Halon extinguisher	1.0 Kg	about 16 sec.	2 - 3 m
	2.0 Kg	about 18 sec.	3 - 4 m
CO2 extinguisher	3.2 Kg	about 21 sec.	2 - 4 m
	4.6 Kg	about 22 sec.	3 - 4 m

② Adaptability & Labels of Fire Extinguishers

- White : For level A fires (wood, paper, textiles, etc.)
- Yellow : For level B fires (oil, gas, etc.)
- Blue : For level C fires (electrical)

③ How to use fire extinguishers

- Hold the handle and take it to the fire.
- Pull out the safety pin next to the handle.
- Point the nozzle toward the fire and grasp the handle tightly to discharge.

④ Cautions when using fire extinguishers

- As each type of fire extinguisher is different, use the appropriate one for the type of fire.
- As discharge time and distance are short, face away from the wind and start extinguishing from the fire's point of origin.

(2) Indoor fire extinguishing equipment

① How to use indoor fire hydrants

Two people form a team, and one person takes the hose to the fire. The person with the hose opens the valve once the hose is unrolled on the floor.

(3) Sprinklers: All sprinklers are inspected regularly to ensure they are in working order.

(4) Outdoor fire hydrants

※ All fire extinguishing equipment must be continuously maintained in proper working order.

**2.2.2.2. Fire Alarms refer to the following:**

- (1) Automatic smoke detectors
- (2) Automated notification equipment
- (3) Emergency alarms (emergency bell, automatic siren, announcement equipment)
- (4) Electric fire alarm

**2.2.2.3. Shelters**

The following are available as refuges when a fire breaks out.

- (1) Slides, fire ladders, rescue squads, escape bridges, escape ladders, gondolas, emergency elevators, etc.
- (2) Emergency lights and signs
- (3) Life-saving equipment, such as flash suits, air respirators, etc.

#### **2.2.2.4. Water extinguishers**

- (1) Extinguishing water tank, reservoir, and other water extinguishers
- (2) Water system extinguishers

#### **2.2.2.5. Equipment Needed when Extinguishing Fires**

The following are necessary for the fire department when extinguishing a fire:

- (1) Flues
- (2) Connecting pipes
- (3) Connecting sprinklers
- (4) Emergency outlets
- (5) Wireless communication accessories

### **2.2.3. How to Handle Fires**

#### **2.2.3.1. Plan for dealing with fires**

- (1) Report system & emergency alert: Report fire right away by calling 260 or 470 using a campus phone, or 119 using a regular phone.
- (2) Emergency contact network: Call the established network within the appropriate administration department, college or department.
- (3) Self-defense fire brigade formation
- (4) What to do in the event of a fire: Although those working or living on campus usually detect fires, everyone should be on the alert, and the first person to notice a fire should report it by calling 119 using a regular phone, then 260 or 470 using a campus phone so that those in the building can be notified. Preliminary measures should be taken immediately to extinguish the fire and evacuate those living or working in the building.
- (5) How to deal with fire- and accident-related emergencies
  - ① If an employee or student discovers a fire on university premises, he or she should set off a fire alarm immediately and call 260 or 470 on a campus phone and 119 using a regular phone to make the fire known.
  - ② The individual must not judge the seriousness of the fire and must not approach the fire recklessly. However, if it is possible to suppress the fire in its beginning stages, he or she

should do so using a fire extinguisher or hose in the area.

- ③ If a fire alarm goes off, immediately stop what you were doing, turn off as much power and gas valves as possible, close doors and windows, and evacuate through an emergency exit in the opposite direction from the fire.
- ④ If a fire breaks out near you, let others know by shouting "Fire" and extinguish it with a fire extinguisher immediately.
- ⑤ Fire extinguishers are only to be used in the beginning stages of fire, only attempt to use them in the beginning stages, and evacuate if the fire grows. If the type of fire can be extinguished with water, form a team of two people and extinguish the fire using an indoor fire hose.
- ⑥ When evacuating, keep low to the ground, move and breathe sparingly, and cover your nose and mouth with a damp cloth if possible.
- ⑦ If anyone in the area is injured, move them to a safe place before taking emergency measures to extinguish the fire.
- ⑧ If trapped by fire, do not jump from a window, but wave your hand to request rescue.
- ⑨ Never take an elevator if there is a fire.
- ⑩ If unable to suppress a fire in its beginning stages, do not break windows recklessly.

## **2.2.4. Everyday Fire Safety**

### **2.2.4.1. Electrical Fire Safety**

Most electrical fires result from carelessness in using electronic equipment, and the most common causes are as follows.

- (1) Overcurrent (overload): Fires can be caused by overheating from having too many wires plugged in or connected, neglecting unused electrical equipment, etc. If possible, turn off and/or unplug all electronics when they are not in use.
- (2) Short circuit: If electronic equipment is used for long periods of time, there is great danger that overheating of the wires and plugs could cause a short circuit. Therefore, it is necessary to frequently inspect all regularly-used equipment.
- (3) Fault current: This occurs when electronic or wire insulation is damaged and electricity leaks out. Electricity flows in one direction, and can cause fire by overheating if the current is broken.
- (4) Poor connections: Many electrical fires are of this type. In order to prevent fires resulting from poor connections between wires and electronic equipment and within electronics, all electronics should be inspected frequently before and after use.

### **2.2.4.2. Carelessness When Using Equipment**

When using heating equipment, make sure there are no flammables within 1 meter. When operating experimental, inspect it regularly and try not to leave the area.

- (1) Gas fire accidents: Gas fires are not just fires, but are accompanied by sudden explosions, and can therefore cause great damage to assets, not to mention human life, and affect a very wide area. Gas explosions happen suddenly, leaving no time to react, so the best way to prevent them is by inspecting all alarms frequently, and making sure that everyone is sufficiently informed of safety rules.
- (2) Imperfect combustion: Occurs when the ratio of gas to air is insufficient, or when gas is released in excessive amounts. In such cases, the amount of CO increases.
- (3) Backfire: In normal fireworks, burning rate and flying speed are balanced, but backfire occurs when burning rate is faster than flying speed, creating potential for explosion as gas and air mix and combust inside the chamber if the fuse goes inside.
- (4) Lift: Contrary to backfire, lift occurs if the fuse comes out of the fireball when gas erupts faster than the burning rate and it combusts in the air.

#### **2.2.4.3. Safety Measures When Using Butane Gas**

- (1) Do not store or use containers in direct sunlight, near heaters, or in any place where there is direct heat.
- (2) Do not use pots or containers with a bottom larger than the burner, as doing so could result in explosion.
- (3) Use of two gas burners side by side is strictly forbidden, as doing so could result in explosions.
- (4) Unused containers must be stored in a shaded place where the temperature is under 40°C.
- (5) Be sure to poke a hole in used butane gas containers prior to disposal to prevent secondary fires and explosions.

#### **2.2.4.4. Other Fire Prevention Measures**

- (1) Do not use nail polish or acetone near a heater.
- (2) Do not use spray cans containing flammable gas near a heater or fireworks.
- (3) Make sure to use a wide base when burning mosquito repellent incense.
- (4) Be sure to fully extinguish all candles before disposal.
- (5) Do not smoke in bed.
- (6) Fully extinguish cigarette butts, and dispose of them in a designated place.
- (7) Do not park where there is flammable material or dry grass, etc.

#### **2.2.4.5. Provisions**

Fire management details not expressly stated in these guidelines are to be determined based on the university's fire regulations, fire extinguishing methods and corresponding ordinances.

### 3. Vehicle Safety Control Guidelines

#### 3.1. Summary

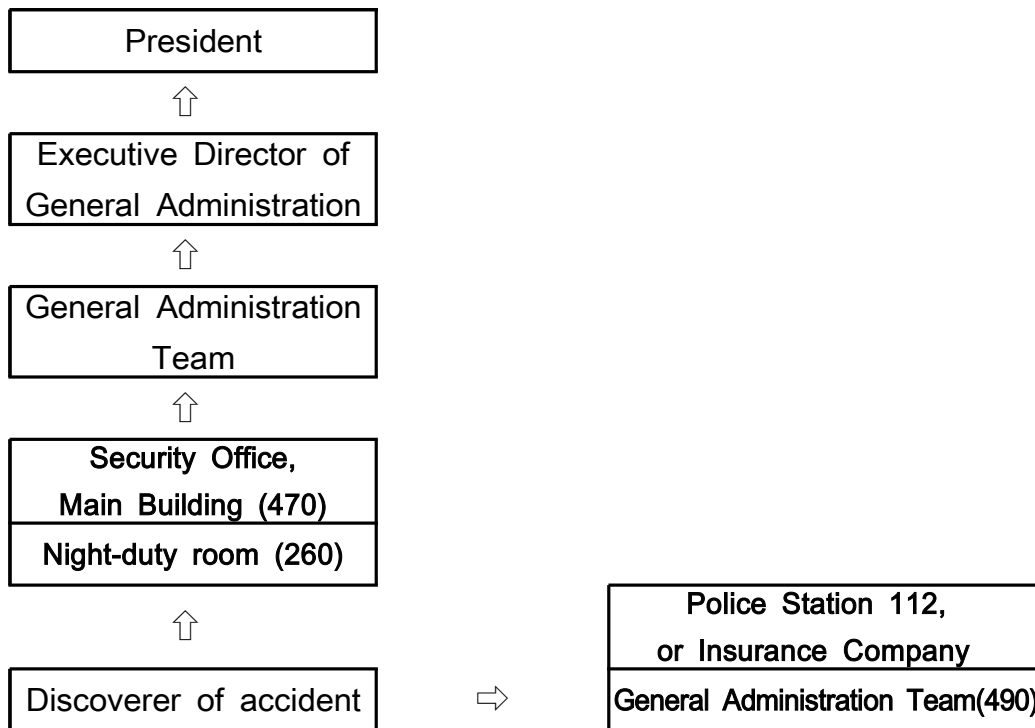
##### 3.1.1. Purpose

To provide an institutional strategy for the protection of precious life and assets from vehicle-related accidents through safe and efficient management of all business vehicles owned or rented by the university.

##### 3.1.2. Range of Application

Applies to all university employees, students, other members and visitors, all vehicle facilities and equipment.

##### 3.1.3. Vehicle Accident Report Diagram



## **3.2. Vehicle Safety Control Guidelines**

### **3.2.1. Purpose**

The purpose of these guidelines is to establish a safe and efficient management system for all university-owned or rented vehicles, and they apply to all members of the university.

### **3.2.2. Classification:** Business vehicles are as follows.

- (1) Private car: President's use
- (2) Shuttles: bus
- (3) Business use: vans and others

### **3.2.3. Operating Standards**

- (1) Members of the university must use caution when using university vehicles, maintain them consistently and observe all safety standards and guidelines.
- (2) As a rule, drivers are designated for each type of vehicle, and no others are permitted to drive. However, exceptions can be made if a university employee obtains permission ahead of time.
- (3) If application for approval is made to the General Administration Team ahead of time, the head of the General Administration Team must judge if it is suitable for the applicant to use relevant vehicle and grant permission.
- (4) If there is any damage requiring repair after using a university vehicle, inform the person in charge, who will in turn ascertain the situation and report it to the head of the General Administration Team so that appropriate measures can be taken.
- (5) Users can be penalized if they use a vehicle without permission, or if they use a vehicle in an unsafe manner.

### **3.2.4. Application Standard**

- (1) University vehicles are university resources and are not to be used for any illegal, personal or other purpose that could cause loss to the university.
- (2) If a university employee wishes to use a university vehicle for PR or education-related business, he or she must submit an application to the General Administration Team at least 24 hours in advance and receive approval from the head of the General Administration Team.
- (3) University vehicles can be used under the following circumstances.
  - ① For university business or events.
  - ② When approved by Dean of Student Affairs for use by an approved student group.
  - ③ Other circumstances when the head of the General Administration Team deems necessary.

- (4) Receipt and return of university vehicles must be done on campus and must be accurately recorded in the respective car's journal. When returning a vehicle, the keys must be returned to the head of the General Administration Team.
- (5) The user is held responsible for lost vehicle keys.

### **3.2.5. Requirements for University Drivers**

- (1) University drivers must be at least 20 years of age and must satisfy other requirements for their assigned position.
- (2) University drivers must possess a valid driver's licence for the respective type of vehicle and must observe all related guidelines.
- (3) Passenger van drivers must have had their licence for at least 3 years.
- (4) Drivers must observe all legal requirements related to the vehicle they are driving and are held responsible for all violations.

### **3.2.6. Items for Compliance**

- (1) Drivers scheduled for duty must not drink alcohol or take medicine that could affect their driving. (Including legal medicine which could impair driving.)
- (2) Drivers and passengers must not smoke or use other tobacco products in university vehicles.
- (3) All users must fasten their safety belts, and drivers must remind passengers to fasten their safety belts before starting.
- (4) Drivers must not use a cell phone while driving.
- (5) On trips of 3 hours or more, drivers must make a 20-minute rest stop every 2 hours so they can drive safely.
- (6) All drivers of university vehicles must observe all traffic laws.

### **3.2.7. Limitations of Use**

- (1) University vehicles can only be used for university business.
- (2) Vehicles must be returned in the same condition they were in when borrowed. If a vehicle cannot be returned on time or in proper condition, the user must notify the general affairs team of circumstances and obtain permission.
- (3) As a rule, users are held responsible for losses (speeding, parking violations, etc.) which occur through obvious negligence on the part of the user. However, exceptions are made for mechanical defects of the car itself, which are reported to the insurance company.
- (4) Users are responsible for seeing that all passengers keep safety-related rules. If safety is compromised by passengers' failure to keep safety regulations, the respective user will be unable to borrow university vehicles in the future.
- (5) The General Administration Team reserves the right to limit or cancel use of university



vehicles in unexpected circumstances.

### **3.2.8. Fuel Supply**

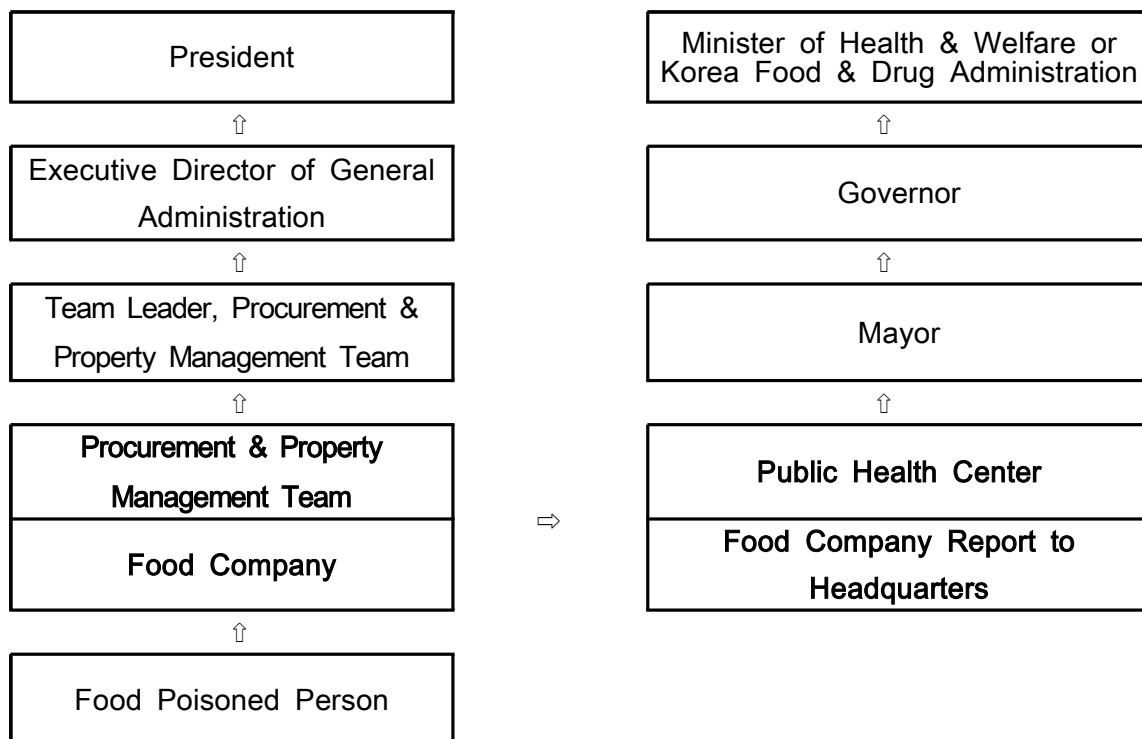
- (1) Fuel is provided by vehicle type based on mileage and scheduled usage.
- (2) Fuel tickets must be returned immediately if not used on the same day they are issued from the general affairs team.
- (3) Drivers must report lost fuel tickets and poor fuel quality to the General Administration Team immediately.

## 4. Food Safety Guidelines

### 4.1. Food Hygiene Safety Control

#### 4.1.1. Food Poisoning Report Procedures

- (1) If anyone has caught food poisoning or suspects he or she has, he or she should contact the management team or food company immediately and go to a hospital for treatment.
- (2) The management team reports the incident to its headquarters and the president after checking on the subject's condition.
- (3) The food company must perform an epidemiologic investigation of the preserved food after reporting the incident to its respective head office, and must report the incident to the appropriate (public) health center when investigating the cause.
- (4) In accordance with the president's order, the doctor treating the patient with food poisoning must take measures necessary to keep samples of the patient's blood and stool.



## **4.1.2. Safety Control for the Prevention of Food Poisoning**

### **4.1.2.1. Handling of Food, etc.**

Use, preparation, storage and heating of food must be done in a cleanly and sanitary manner. The following types of food cannot be sold.

- (1) Foods that could cause health problems due to being rotten, spoiled or undercooked.
- (2) Foods that contain or have made contact with poisonous or toxic materials, or are suspected of such danger.
- (3) Food which are contaminated by pathogenic microbes or are suspected of such.
- (4) Foods containing unclean or other materials which could harm health.
- (5) Expired foods

### **4.1.2.2. Sanitary Control for Preparation Equipment and Containers**

### **4.1.2.3. Personal Hygiene**

As anyone handling food could cause food-related diseases through the spread of harmful bacteria, personal hygiene is extremely important.

Because culinary workers can spread disease-causing microorganisms through skin, hands, hair, breath, conversation, coughing, etc., those handling food must always be healthy and cleanly, and must make an effort to expand their knowledge of sanitation.

#### **(1) Health Management**

- ① Based on the Food Hygiene Law, Article 26 (Health Diagnosis), those working in food and hospitality industries must undergo regular health diagnosis once a year.
- ② No one experiencing diarrhea, stomachache, nausea, symptoms of jaundice, itchy skin, or other abnormalities is permitted to prepare or serve food.
- ③ Hand wounds: Anyone with a wound on his or her hand(s) must disinfect the wounded area, protect it with a bandage and wear rubber gloves. If possible, he or she should do work not directly related to food preparation.
- ④ Hygienic training of culinary workers (carried out by nutritionist)

#### **(2) Attire**

- ① When preparing food, workers must wear hygienic outfits and headwear and take care of their hair, facial hair, etc.
- ② Everyone serving food must wear a mask to prevent contamination of food from coughing, conversation, sneezing, etc.
- ③ Watches, rings and other accessories may not be worn while preparing food.

#### **(3) Hand Washing**

Many cases of bacterial food poisoning, infection of the digestive tract, etc. result from contamination from the handlers' hands. Adequately washing one's hands in running water

removes about 90% of microorganisms, and using soap removes about 99% of microorganisms. Therefore, washing one's hands well is an easy and simple way to prevent food poisoning.

#### (4) When to Wash One's Hands

- ① After putting on work clothes and before starting any food preparation, etc.
- ② After using the toilet or touching waste, rags, cleaning tools, etc.
- ③ When putting prepared food in containers.
- ④ After touching one's face or hair.
- ⑤ After work.
- ⑥ Before leaving and after returning.

#### **4.1.2.4. Other Sanitation Management**

- (1) Regular disinfection of cafeterias.
- (2) Regular sanitation inspections: supervising office.
- (3) Regular inspection of water purifier water quality: twice a year.
- (4) Timely consumption of prepared food (within 4 hours of preparation).
- (5) Sanitary facilities for the disposal of leftovers.
- (6) Education about cafeteria customers.

## 5. Student Activity Safety Control Guidelines

### 5.1. Summary

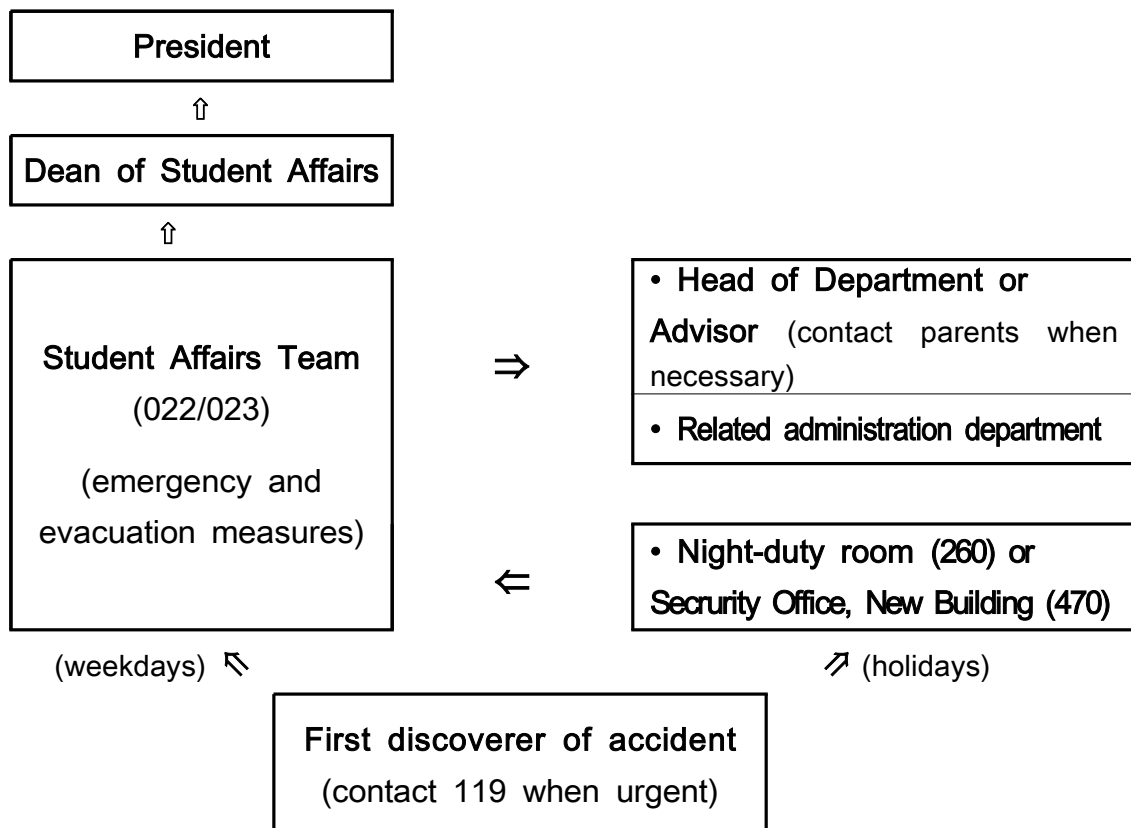
#### 5.1.1. Purpose

To provide an institutional strategy for the establishment of close cooperation between academic and administrative departments in order to prevent accidents in the activities of student-run organizations and groups, both on and off campus, and to deal with accidents in a timely and effective manner when they occur.

#### 5.1.2. Range of Application

Applies to all participating students and related facilities and equipment used in events held by any of the university's student-run organizations or groups, both on and off campus.

#### 5.1.3. Student Accident Report Diagram

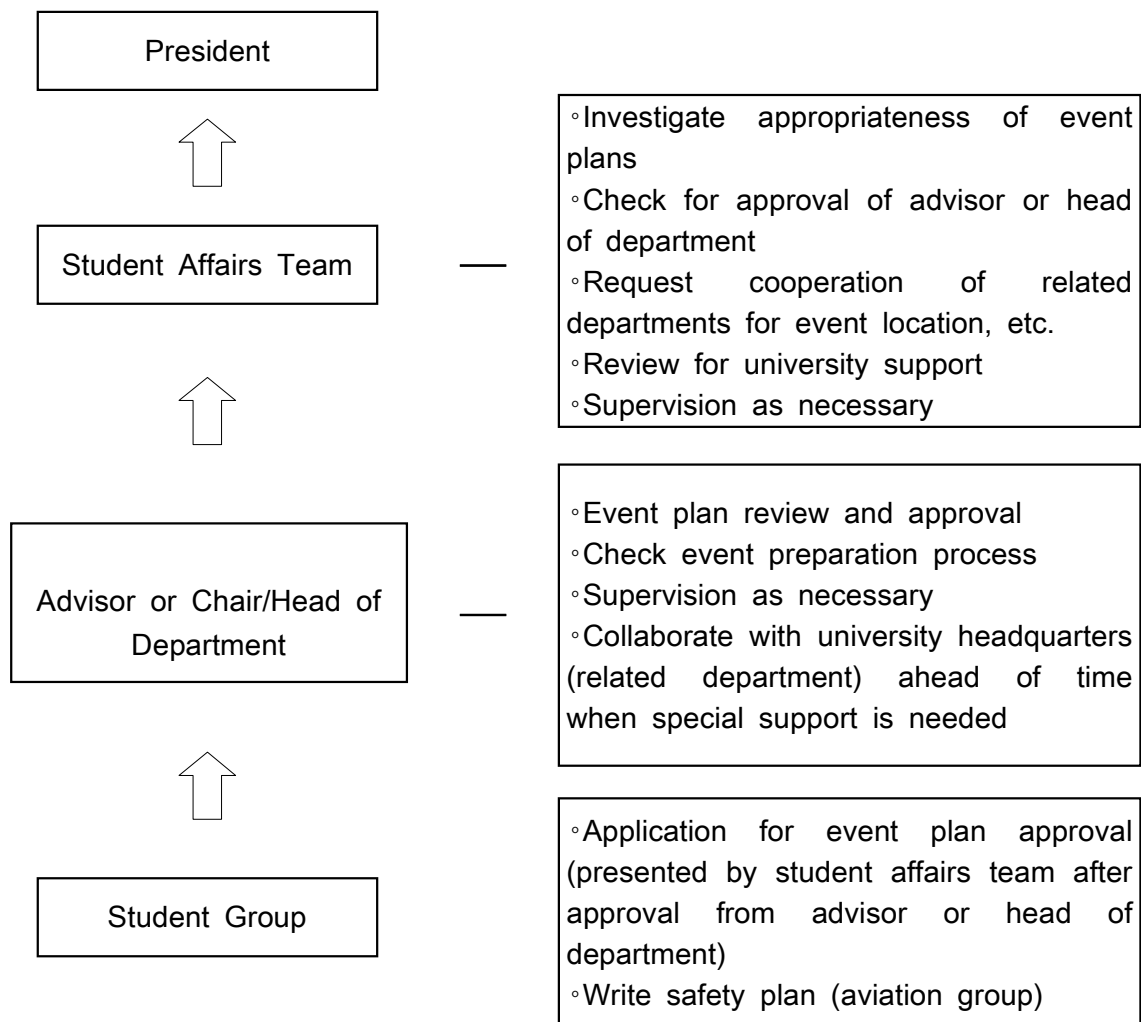


## 5.2. Student Activity Safety Control Guidelines

### 5.2.1. Purpose

To establish a system of close cooperation between academic and administrative departments for the prevention and timely, effective handling of accidents occurring at events on and off campus run by student-run organizations and clubs (groups).

### 5.2.2. Student Activity Approval Procedures



### 5.2.3. Types of Accidents and Measures (Prevention)

#### (1) On-campus Events

Event	Accident Type	Prevention (measures)	Related Dept.
University Festival, Aviation Day, Field Day, Club Event	Sleeping outdoors after drinking	<ul style="list-style-type: none"> <li>• Strengthen patrol on event premises</li> </ul>	General Administration Team (during & after event), Student Affairs Team (during event)
	Crash	<ul style="list-style-type: none"> <li>• Investigate crash possibilities beforehand</li> <li>• Supervision as needed</li> </ul>	Advisor / Head of Department, Student Affairs Team
	Accident during event	<ul style="list-style-type: none"> <li>• Provide first-aid kits</li> <li>• Emergency measures or call 119 for paramedics</li> </ul>	Student Affairs Team
	Traffic accident	<ul style="list-style-type: none"> <li>• Traffic regulation</li> </ul>	General Administration Team
	Electric accident	<ul style="list-style-type: none"> <li>• Preventative electronics inspection and patrol</li> </ul>	Construction and Maintenance Team
	Fire (explosion)	<ul style="list-style-type: none"> <li>• Provide fire extinguishers on event premises</li> <li>• Patrol event premises</li> <li>• Facility inspection</li> </ul>	Student Affairs Team, General Administration Team, Construction and Maintenance Team

#### (2) Off-campus Events

Event Name	Accident Type	Prevention (measures)
Volunteer Activities for Farming Communities	<ul style="list-style-type: none"> <li>• Bruises, fractures, etc.</li> <li>• Traffic accidents/crashes</li> <li>• Other accidents               <ul style="list-style-type: none"> <li>- Knife or sickle cut</li> <li>- Nail or thorn prick</li> <li>- Bee stings, snake bites, mower accidents, etc.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Student Affairs Team supervision</li> <li>• Internal patrol group formation and patrol</li> <li>• First-aid kit preparation</li> <li>• Know EMS location</li> <li>• In emergencies, call 119 for paramedics</li> </ul>
Freshman Orientation	<ul style="list-style-type: none"> <li>• Sleeping outdoors after drinking</li> <li>• Bruises, fractures, etc.</li> <li>• Traffic accidents/crashes</li> </ul>	<ul style="list-style-type: none"> <li>• Student Affairs Team supervision</li> <li>• Advisor &amp; Head of Department supervision</li> <li>• Internal patrol group formation and patrol</li> <li>• First-aid kit preparation</li> <li>• Know EMS location</li> <li>• In emergencies, call 119 for paramedics</li> </ul>
Department Retreats	<ul style="list-style-type: none"> <li>• Sleeping outdoors after drinking</li> <li>• Bruises, fractures, etc.</li> <li>• Traffic accidents/crashes</li> </ul>	<ul style="list-style-type: none"> <li>• Advisor &amp; Head of Department supervision</li> <li>• Internal patrol group formation and patrol</li> <li>• First-aid kit preparation</li> <li>• Know EMS location</li> <li>• In emergencies, call 119 for paramedics</li> </ul>

#### 5.2.4. Measures to be Taken in the Event of Student Activity Accidents

Division	Measures and Things to Check
First Discoverer of Accident	<ul style="list-style-type: none"> <li>- Judge severity of accident (contact Student Support Team or Night-duty room)</li> <li>- In emergencies, contact 119 for paramedics</li> </ul>
Event Support Team	<ul style="list-style-type: none"> <li>- Emergency measures, or call an ambulance</li> <li>- Contact advisor or head of department</li> <li>- Understand situation through consultation with related department (Individual error, defects in equipment, facilities, etc.)</li> <li>- Submit request for insurance processing to the general affairs team</li> </ul>
Advisor or Head of Department	<ul style="list-style-type: none"> <li>- Understand situation and contact parents if necessary</li> <li>- Handle accident through consultation with related administrative department when necessary</li> </ul>
Office	<ul style="list-style-type: none"> <li>- Check for defects in equipment and facilities and repair (Construction and Maintenance Team)</li> <li>- File compensation claim to insurance company when necessary (General Administration Team)</li> <li>- Check for guard patrol (General Administration Team)</li> </ul>



## 6. Flight Training Center Safety Guidelines

### 6.1. Outline of the FTC's Safety Control Guidelines

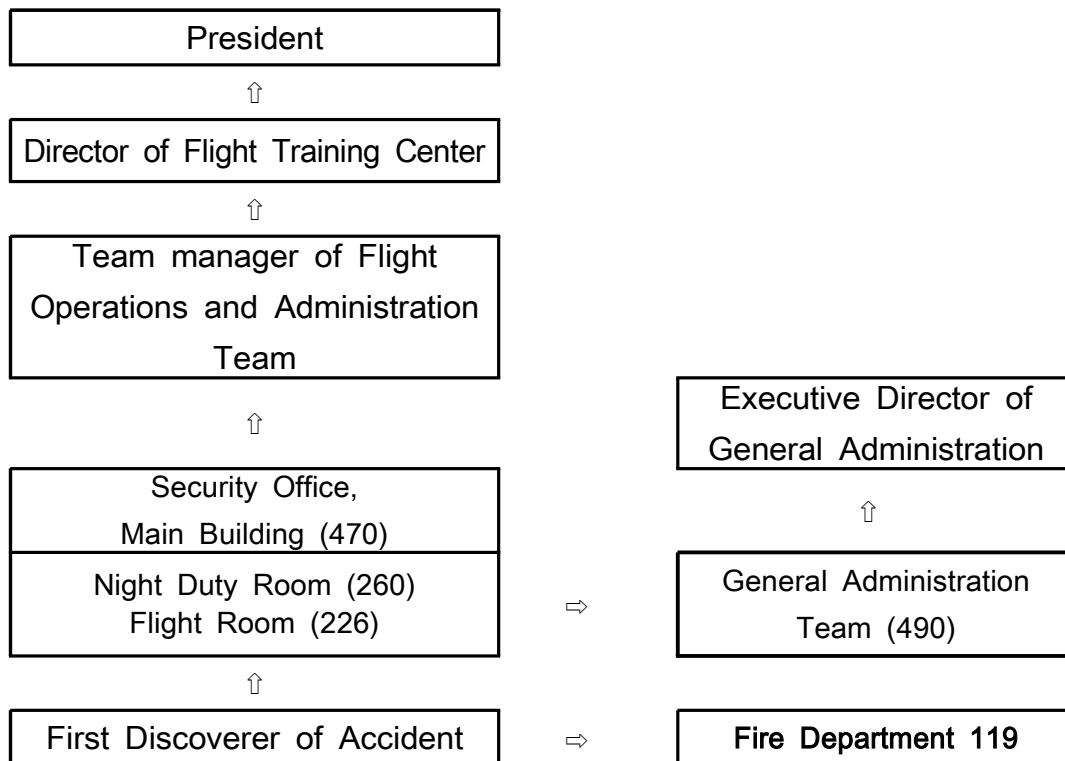
#### 6.1.1. Purpose

To provide and institutional strategy for the prevention of accidents involving the university's training aircraft and resulting loss and injury to precious life and resources by defining and putting into action necessary particulars related to safety for flight training using aircraft.

#### 6.1.2. Range of Application

Applies to all students and trainees receiving training through the university's flight instructors and training aircraft, and to all flight training facilities and equipment.

#### 6.1.3. Distribution Diagram for the Report of Aviation Accidents



## **6.2. Flight Training Safety Procedures**

### **6.2.1. Safety Duties Plan**

- (1) The person in charge prepares a safety activity plan every year by February.
- (2) Season-specific safety measures are drawn up for flight training before the start of each season.

### **6.2.2. Flight Safety**

- (1) Pilots carry on continual mutual supervision of the entire flight process to check if there are any safety violations, giving immediate advice in the event of a problem and submitting it as an item on the agenda for the safety standard meeting.
- (2) Flight plans are adjusted through the person in charge when a pilot is ill.
- (3) Notify the safety supervisor of flight safety related issues, so that the supervisor can spread the news.
- (4) If there is a problem with the condition of any type of flight facility, including FOD operational condition and R/W, notify the flight room to take measures to rectify the situation.
- (5) If there is an obstacle to aircraft ground safety due to aircraft placement on ramps, the placement of any support equipment, number of people, vehicle traffic, etc., notify the Aircraft Maintenance Team to take measures to rectify the situation.
- (6) When there is a possibility of colliding with birds in the area, request that the flight room take necessary measures to get rid of the birds. If in flight, adequately advise both the pilot(s) and controller(s).
- (7) If an established safety control regulation is an obstacle to safety, it is revised after judging if such revision is appropriate.
- (8) Both pilot and controller maintain cooperation related to safety throughout flight.
- (9) If a pilot or controller discover a safety hazard during flight, such as a sudden change in weather, etc., prompt notification and advising is implemented.

### **6.2.3. Report of Aviation Accidents**

#### **6.2.3.1. Aviation Accident Report System**

- (1) Subject of report (Aviation law enforcement rule #146-2): All incidents or situations where there is hindrance to or possibility of hindrance to the safety of aircraft, excluding accidents related to aircraft determined by aviation law and its enforcement rules.
- (2) Related department: Korea Transportation Safety Authority

#### **6.2.3.2. Subjects Not to be Reported Through the Aviation Accident Report System**

- (1) Related issues
  - ① Accident-related information
  - ② Crime-related information
- (2) Related department
  - ① Ministry of Land, Transport and Maritime Affairs
- (3) Report Processing

① Internal processing report

- The author of a report secures the team leader's authorization through the consent of the person in charge of safety.
- The flight training team leader submits one copy of the report to the person in charge of safety after obtaining the consent of the director of flight training center.
- The person in charge of safety implements the investigation and analysis of the report contents based on the submitted report and takes measures suggested through a meeting of the relevant departments.

(4) Post-processing

- ① In the event that safety hazards arise as a result of not carrying out regulations or of individual neglect of duty, etc., a warning can be issued in the name of the director of the flight training center.
- ② The higher regulations apply when there is a discrepancy with a higher department's regulations.

(5) External processing report

An external processing report must be submitted to the relevant division (Korea Transportation Safety Authority) once the director consents.

(6) Reports and processing results are kept on file.

#### **6.2.4. Safety/Standardization Meetings & Training**

**6.2.4.1.** Safety/standardized meetings are implemented under the authority of the person in charge of safety, and matters related to flight safety and standardization are decided upon in a meeting, and results related to the flight education team.

#### **6.2.4.2. Safety/Standardization Meetings & Training**

- (1) The person in charge of safety presides over meetings.
- (2) Meetings are to be held regularly once a month (in the last week).
- (3) Meeting contents
  - ① Weather prospects & number of favorable days for the month
  - ② Monthly maintenance / inspection summary plans
  - ③ Monthly flight records and plans
  - ④ Issues for discussion
  - ⑤ Announcements
  - ⑥ Other
  - ⑦ Safety/standardization meeting results are relayed and kept by the flight training management team.
- (4) The person in charge of safety attends all safety-related meetings (control meetings, seminars, etc.) and relays the results.
- (5) Safety education for students in pilot training can be carried out by the responsible instructor based on contents received from the person in charge of safety.

#### **6.2.5. Safety-related Journals & Files**

##### **6.2.5.1. Daily Aircraft Records**

(1) Training efficiency and flight safety are promoted by keeping a record of aircraft properties, other than mechanical conditions, through daily aircraft records.

(2) Pilots check the record of aircraft properties before entering the aircraft.

#### **6.2.5.2. Safety Measure Files**

Seasonal and other safety measures are kept on file once established and published.

#### **6.2.5.3. Collection of In-flight Occurrence Records**

Pilots' in-flight incidents are written up at the end of each year and kept for use in safety training.

#### **6.2.5.4. SRAA(Seoul Regional Aviation Administration) Safety Meeting Contents**

SRAA-related or related departments' safety meeting contents are kept on record after being published.

#### **6.2.5.5. Annual Safety Activities Plan**

An annual safety activities plan is kept on file after being published.

#### **6.2.5.6. Case Study (Safety Education)**

Cases of malfunction are studied and used to promote safe handling of similar situations.

#### **6.2.5.7. Safety Meetings**

Monthly safety meeting results are kept on file after their summary/analysis is published.

#### **6.2.5.8. Safety-related documents**

Information related to each area of safety is kept on file after being published.

#### **6.2.5.9. Filing of Incident Reports**

Information related to filed incident reports is kept on file after being published.

### **6.3. Procedures for Visitor Flight**

#### **6.3.1. Purpose**

To maintain safety by establishing a standard of procedures for visitor flight for the effective regulation of the number of people on the airfield.

#### **6.3.2. General**

##### **6.3.2.1. Range of Application**

(1) These procedures apply to all students and others who use the university's aircraft.

#### **6.3.3. Responsibility**

##### **6.3.3.1. General**

(1) The flight training center must appoint people to give information about the visitor flight and inform passengers of the notices set forth in these guidelines.

(2) A representative of the department or individual which applies to use a visitor's flight shares responsibility with the flight training center guide for supervising the passengers.

##### **6.3.3.2. Responsibilities**

(1) The flight training team is responsible for processing applications for the use of visitor flight and

for the maintenance of passengers' personal details and contracts.

- (2) The flight training team must inform the aircraft maintenance team and control room as soon as a passenger is confirmed so they can prepare ahead of time.
- (3) The flight training team must provide a guide and adequately inform passengers of the notices set forth in these guidelines.

#### **6.3.4. Visitor Flight Procedures**

- (1) The individual or department applying for the use of a visitor flight must submit an application form and personal details at least one day prior to the day they plan to use the aircraft.
- (2) The flight training center must determine aircraft availability as soon as an application is received, and must inform the applicant of their decision.
- (3) Candidates must complete the contract in its entirety and be informed by the guide of the notices set forth in these guidelines.

#### **6.3.5. Visitor Flight Guides**

- (1) Visitor flight guides are selected from among the flight training center's staff. They are well-trained in conducting aircraft safety inspections and have a wide scope of knowledge related to the respective type of aircraft, the hangar, landing gear, runway location and safety zones.
- (2) As visitors are not familiar with the university's runway and safety regulations related to the aircraft, they must refrain from doing anything individually and wait in a designated location.
- (3) Upon passengers' arrival, visitor flight guides must distribute and explain safety notices to passengers in a safe place.
- (4) Guides are to allow passengers to board the aircraft only after confirming that they have completed the contract in its entirety, and that the passengers' identities have been checked against their individual ID cards.

#### **6.3.6. Passenger Notices (For Distribution)**

- (1) Please refrain from individual activity and follow the instruction of your guide in areas where aircraft could be moving near any hangar or runway.
- (2) Please seek your guide's assistance in an orderly fashion if private business presents the need or if you have a question.
- (3) All visitor flight guides may request to see your ID as a part of security procedures, so we kindly ask your cooperation in this matter.
- (4) Please check that you have received a summary of the aircraft and its safety features from your guide.
- (5) When moving to the aircraft, please do not approach the aircraft until your guide has instructed you to do so.
- (6) Upon reaching the aircraft, please wait and do not board the aircraft until the pilot and your guide have directed you to do so.
- (7) When boarding the aircraft, grab the handle attached to the body of the aircraft with your left hand, step onto the step with your left foot and the black part of the wing with your right foot to climb up onto the aircraft.

- (8) After climbing up onto the aircraft, please duck down and be careful not to damage any of the equipment as you enter the aircraft. Once inside, please sit in one of the back seats and fasten your safety belt.
- (9) Once you have fastened your safety belt, please do not unbuckle it until the flight is over, the engine has been turned off, and the pilot has directed you to do so.
- (10) Once the flight is over, please remain seated until the pilot directs you.
- (11) Please follow your guide's instructions and grab the handle attached to the body of the aircraft with your right hand, step on the black part of the wing and the step to slowly get down from the aircraft, just as when you boarded. Please never jump down from the aircraft.
- (12) After getting out of the aircraft, please follow the path indicated by your guide.

## **6.4. Maintenance Safety Procedures**

### **6.4.1. Preventative Maintenance Inspection Code**

- (1) Aircraft maintenance and inspection are to be carried out thoroughly according to the manufacturer's service & maintenance manual.
- (2) Aircraft maintenance and inspection are to be carried out through thorough maintenance checks without carelessness, negligence or arrogance, even for minor flaws.
- (3) Replacement and inspection schedules must be kept to in regards to deadlines and function inspections to ensure safe operations.
- (4) If at all possible, the replacement or adjustment of important parts is to be carried out and checked by two people.
- (5) Only manufacturer-recommended parts are to be used.
- (6) General or specialized tools and measuring instruments used in aircraft maintenance must be of the right standard, and set periods must be abided by for periodic maintenance.
- (7) In consideration of safety, visual checks are always to be carried out with the greatest care, even on parts not listed for inspection.
- (8) All are to do their best to prevent the recurrence of common defects through research, analysis and review.
- (9) When a defect is discovered, corrective measures are to be taken in an unrushed manner, and a thorough review is to be carried out for safety.
- (10) Always check that there are no tools or other objects left on the engine or aircraft after maintenance.
- (11) Relevant AD, SB and regular inspections are to be carried out thoroughly, and necessary parts are to be procured in a timely manner.
- (12) Thorough aircraft maintenance records are to be kept on file.
- (13) To ensure safe flying operations, sufficient time is to be allowed for maintenance to ensure that it is not done in a pressed manner.
- (14) When towing aircraft, always be careful to look both directions and be careful not to run into obstacles in the area.
- (15) No one is to approach aircraft operating on the ground. (One person placed in the area.)
- (16) Do not handle parts with which you are unfamiliar when taking aircraft for a test-run on the

ground.

#### **6.4.2. Ground Equipment Maintenance Code**

- (1) Do not place anything on the aircraft when conducting maintenance, but use caution so as not to damage the aircraft through carelessness when using tools.
- (2) When using an electric heater, lights, or other electronic equipment, be careful that they don't overheat. Never leave electronic equipment turned on when no one is in the area, and always unplug all electronic equipment when you are done using it.
- (3) Ground maintenance is always to be done in an appropriate location.
- (4) If a problem arises in conducting ground maintenance, request repair immediately so that it can be fixed safely.

#### **6.4.3. Facility Maintenance Code**

- (1) Check to see if there are any factors that could cause a facility's disintegration or damage so that they can be removed before they cause problems.
- (2) Check to see if there is any possibility of damage to any hangars, facilities, cargo, etc.
- (3) Keep things clean and clear away all gear, cargo, etc. that could interfere with safety.
- (4) Maintenance shops (hangars) must always be kept neat, tidy and clean.
- (5) Check all lines, labels, and other things attached to equipment to make sure they are clean and in good order.

#### **6.4.4. Ground Accident Prevention Code**

- (1) When repairing or inspecting aircraft, be careful that no accidents occur as a result of carelessness.
- (2) Be careful that there are no obstacles, etc. in the area or course of taxiing aircraft, or aircraft being test-driven.
- (3) All maintenance, replacement or adjustment of important aircraft parts is to be carried out by a certified mechanic, who is to also perform a final check.
- (4) Be careful that no one gets injured when a propeller is spinning on its own.
- (5) Always be careful that no damage is done through neglect to aircraft, tools or equipment when using equipment or tools to perform maintenance on aircraft.
- (6) When towing or stowing aircraft in a hangar, be careful not to collide with any obstacles, etc. in the area.
- (7) Check that all equipment, etc. in the hangars is safely stowed away so that it will not fall and damage any aircraft in the hangar.
- (8) Always be careful that no one gets injured when opening or closing a hangar door.
- (9) Smoking is forbidden within 50 feet of all fueling stations, and fire extinguishers must be prepared at all times near fueling stations.

#### **6.4.5. Fire Extinguishing Equipment Maintenance & Fire Prevention Inspection Code**

- (1) Never store or leave unattended any flammable, ignitable or explosive materials in any aircraft,

hangar or office.

- (2) When using electric heaters, be careful that fire does not break out as a result of overheating or an electrical short.
- (3) Do not throw cigarette butts away thoughtlessly.
- (4) Fire extinguishers are to be placed in reasonably, and their locations must be clearly labeled.
- (5) Fire extinguishers are to be inspected regularly and refilled or replaced as necessary.
- (6) If there is a fire, take beginning measures to extinguish it, and contact the area fire station.

#### **6.4.6. Aircraft Security Code**

- (1) Be sure to receive and return aircraft keys before and after a flight.
- (2) Return the key to its place after using it. (Check each aircraft for key location.)
- (3) Check the door's locking mechanism after stowing an aircraft in a hangar.
- (4) After daily tasks are completed, check all locks before leaving the room.
- (5) Regulate the access of non-university persons to hangars, gear and aircraft.
- (6) Carefully patrol hangars after hours and on holidays.

#### **6.4.7. Measures to Take in the Event of an Accident**

- (1) If there is a ground accident involving an aircraft, take appropriate fire extinguishers or demolishing tools to the site of the accident.
- (2) Promptly rescue any people involved in the accident and remove anything that could cause a fire or explosion.
- (3) If someone is injured, take emergency measures and move them to a hospital as soon as possible.
- (4) After reporting the accident to the appropriate department (Flight Training Center, University Headquarters, Flight Department, SRAA), block off the site of the accident so that it can be properly dealt with.
- (5) Accident sites are to be kept off limits after investigation (SRAA, related department).
- (6) Closely review and analyze the cause of accidents.

#### **6.4.8. Waste Management Code**

- (1) Engine oil, empty containers, grease rags, etc. must be reported on the 10th of every month.
- (2) Dispose of waste promptly.
- (3) Perform inspections often to prevent fires.
- (4) Always use locks to prevent access of external parties.

#### **6.4.9. Hangar and Other Container Management Code**

- (1) Keep all equipment and tools appropriately organized.
- (2) Report any possible hazards to a team leader right away.
- (3) Always store hazardous materials separately and make sure that there are no leaks.



## **6.5. Aircraft Key Management Procedures**

### **6.5.1. Purpose**

These procedures are to provide guidelines for managing the keys of university aircraft to keep them secure.

### **6.5.2. General**

Range of application: These procedures apply to the work of managing the keys to all aircraft belonging to the university's Flight Training Center.

### **6.5.3. Duties by Department**

- (1) Mechanical maintenance
- (2) Aircraft keys & key box management
- (3) Management of aircraft waiting list

### **6.5.4. Management of Aircraft Keys**

#### **6.5.4.1. Transfer of Aircraft Keys**

- (1) The head of the aircraft maintenance team is responsible for receiving the key box from the night-duty room and delivering the key box to the designated manager for the day.
- (2) The designated manager must return aircraft keys to the head of the aircraft maintenance team.
- (3) The designated manager must record the condition of the available aircraft on that day.

#### **6.5.4.2. Taking Responsibility for Aircraft Keys**

- (1) The designated manager for the day must receive the aircraft keys from those who used aircraft that day after the flights are over.
- (2) The designated manager must give the key box to the head of the aircraft maintenance team and record it in the daily log after locking the aircraft key box.
- (3) The head of the aircraft maintenance team must lock the key box in the safe before leaving.

## 7. Laboratory Safety Control Guidelines

### 7.1. Basic Laboratory Safety Guidelines

#### 7.1.1. Laboratory Safety Rules

Just as research and investigation requires effort, laboratory safety also requires on-going attention and effort. If we want to work safely in a laboratory, we have to be sufficiently informed of points related to health and safety for the machinery, apparatus, chemicals, etc. being used. Also, for personal safety and the safety of co-workers, it is vital that each person recognize the importance of his or her responsibilities and jobs and carry them out.

#### 7.1.2. Safe Experiments

- ① When performing dangerous tasks (experiments), one must wear appropriate protective gear. (safety goggles, mask, gloves, footwear, etc.)
- ② Dangerous, poisonous or volatile chemicals must be used under a hood.
- ③ Emergency contact numbers of those in charge of each laboratory, as well as the book detailing emergency measures, etc. to be taken if a problem arises in a laboratory, must be displayed at all times.
- ④ Keep basic rules, such as not smoking; and label all containers with dangerous contents

#### 7.1.3. Attention to the Safety of Others

#### 7.1.4. Understanding Laboratory-related Dangers

#### 7.1.5. What to do in the event of an accident

- (1) If an accident occurs, emergency measures must be taken immediately. Everyone must be sufficiently informed about water, emergency showers, eye wash, emergency exits, fire extinguishers and hydrants, etc. kept in laboratories.
- (2) Notify people in the area right away. If there is a fire or other accident, information about the following possible instances must be provided while informing people in the area.
- (3) Someone must take action to contact the supervisor(s) through the emergency contact network to get help.
  - Procurement & Property Management Team: 02-300-0037, Construction and Maintenance Team: 02-300-0385
  - College of Engineering Laboratory Support Center: 02-300-0400, 02-300-0018
  - College of Engineering Laboratory Support Center: 02-300-0019
  - New Building Security Office: 02-300-0470
- (4) Fires and other laboratory accidents must be repressed speedily. Cutting off danger from fire means taking measures to prevent further loss/damage. If there is a fire, shut all doors and windows to prevent the fire from spreading throughout the building and take initial measures to extinguish the fire. In the event of a small-scale fire, use a nearby fire extinguisher to keep the fire from spreading. If it is impossible to extinguish a fire in its be-

ginning stages, abandon efforts and flee immediately.

- (5) Escape from the building. When evacuating the building, set off a fire alarm and get out through a nearby emergency exit without delay. Evacuate in an orderly fashion so that secondary accidents, such as a stampede, don't occur.
- (6) Call for help using emergency contact number of the fire station, police station, hospital, etc. Call for help from a safe place, explain the nature and location of the situation to the agent in detail and seek instruction from the agent.
- (7) When emergency workers arrive, inform them in detail of all that has happened up to that point.

#### **7.1.6. Reporting Accidents and Other Dangerous Situations**

If an accident happens, call the construction and maintenance team (300-0385), the engineering laboratory support center (300-0400, 300-0019) or the applicable department office. Also, report the accident to the laboratory supervisor or head of department.

## **7.2. Accidents and Emergency Measures**

If a medical accident occurs, call 119 or the university's clinic (02-300-0023) to request the help of paramedics, and accurately inform the paramedic(s) of the nature of the accident. Until paramedics arrive, take whatever emergency measures you know. If you don't know any first aid, it's best not to attempt to do anything.

### **7.2.1. Respiratory Standstill**

If someone is lying unconscious on the floor and has stopped breathing, perform CPR immediately; mouth-to-mouth is the most effective method. Do not waste time trying to get help; it is advisable to start CPR immediately to revive the person while asking for help from those in the area. One must always be familiar with CPR methods.

### **7.2.2. Profuse Bleeding**

Profuse bleeding can be controlled by pressing a pad or cloth on the wound. Although it is best to use clean cloth, clothing can be cut and utilized in emergencies. To prevent shock, wrap the wound and call 119 to request a paramedic. Elevate the wound, apply continuous pressure and have the injured person lie down as comfortably as possible.

### **7.2.3. Burns**

- (1) Cool minor burns with ice or fresh water.
- (2) If clothing catches fire:
  - ① Roll on the floor or cover the burning area with a fireproof blanket if available. Never run to an emergency shower.
  - ② After extinguishing the fire, remove spoiled articles of clothing and shower using an emergency shower.
  - ③ Wash the burned area and cool the burn by keeping it under running water.
  - ④ After cleaning the burn, apply an ice pack and wrap it to prevent shock.

- ⑤ Never use a fire extinguisher on a person.

#### **7.2.4. Chemical Burns**

- (1) If chemicals get on your skin or you get burned, wash the area with water immediately.
- (2) If chemicals get in your eye(s), rinse them with water for 15 minutes or more and request help immediately.
- (3) If chemicals are spilled over a wide area, quickly remove spoiled articles of clothing.
- (4) If chemicals splash on your face, do not wipe them off with your hand, but wash it with running water and only use goggles, etc. again after washing them thoroughly.

#### **7.2.5. Trauma**

Typical symptoms of shock trauma are sudden cold, chills, pallor and lethargy. If the nature of the problem is not clear, make the person warm and lie him or her down, then call for someone to take him or her to a hospital.

### **7.3. Laboratory Safety Guidelines**

#### **7.3.1. Individual Precautionary Measures**

- (1) Avoid doing experiments alone in a laboratory.
- (2) Only perform experiments alone if you are able to adequately perform emergency measures alone. Only do experiments when there is someone nearby who can help if an accident occurs. If another person is performing an experiment in the vicinity, inform them of where the experiment is taking place and agree to help one another if necessary.

#### **(3) Eye protection**

Electric welding is dangerous because of spatter and harmful rays. As debris can fly into the eyes when cutting using a grinder or turner, or performing a tensile or compression test, etc., the user must wear goggles, mask, etc. Regular safety goggles can be used for most experiments, but special goggles, mask, etc. must be used for experiments involving chemicals, infrared rays, etc.

#### **(4) Ear protection**

Noise under 80 dB does not pose any danger to hearing. It is best to avoid noise above 130 dB, as it can affect hearing. Earplugs are suitable for noise ranging between 80 and 95 dB, and earmuffs are suitable for noise above 95 dB.

#### **(5) Respiratory protection**

There are many types and sizes of masks for various situations, so be sure to use one appropriate for the activities going on in the area. Cloth masks protect the respiratory system from small dust, but they do not protect from chemical dust, so they should not be used in areas with toxic materials.

#### **(6) Clothing**

It is good to wear a gown, goggles and apron in situations where it is possible for chem-

icals to splash or spill. Safety gloves are necessary when handling caustic materials or chemicals that can easily be absorbed into the skin.

(7) Hand protection

When performing experiments requiring gloves, make sure to use gloves suited to the experiment.

(8) Leaving the room

Always wash hands and feet when leaving a laboratory. Check all electric heaters, electronics, pipes and equipment, and tidy up before leaving a laboratory.

### 7.3.2. Laboratory Accident Prevention Guidelines

(1) Laboratory Organization

- ① Secure walkways.
- ② Keep laboratory floors tidy.
- ③ Designate a place to store experimental reagents.
- ④ Clear away trash, dust and scraps.
- ⑤ Organization of machinery: Be sure to keep areas around the edge of machine tool blades, drivers, and experimenters clean. Such cleaning should only be done after turning off all equipment.
- ⑥ Organization of electronic equipment: There is danger of electric shock if there is water or objects near electronic equipment. If there is dust or dirt on control panels, panel boards or other switches, it can cause failure; and if a power indicator light becomes so dirty that it is hard to see, it could result in malfunction.
- ⑦ Organization of hand tools: Always inspect hand tools for damage, wear, etc. and remove or repair faulty tools. Set up a room or cabinet to keep hand tools sorted by type and size, so they are easily accessible.
- ⑧ Disposal and storage of toxic substances: paint, thinner, etc. are flammable and can therefore cause fires. They must therefore be stored with the lid tightly affixed. Containers for toxic substances must be labeled with the name, dangers, etc. of the contents.

(2) Experiments Performed Without Supervision

Before leaving the room, check all possible causes of malfunction (overheating) of heating machines, drying ovens, etc., which could be caused by coolant failure (poor hose connection, rupture, freezing), poor ventilation (toxic gas, flammable substances), etc. If you must leave an experiment unsupervised, post an explanation of the nature, contents, possible dangers (toxins, etc.) of the experiment, along with emergency measures, experimenter name and contact information, etc. on the laboratory door. If doing an experiment overnight, be sure to inform the laboratory supervisor.

(3) Handling of Chemicals

- ① All containers must be labeled with the chemical name. Labels must include chemical name, dangers (most serious), preventative measures, date of purchase, components, and

user name.

- ② Do not use anything in an unlabeled container. After completing an experiment, dispose of all containers safely. If there is someone else who can use remaining chemicals, be sure there are no mistakes in the exchange process.
- ③ Never taste or smell any chemical substance.
- ④ Put a "high heat" or similar warning on experimental equipment involving high heat.
- ⑤ Avoid direct contact with chemicals.

#### (4) Mercury Leaks

If a small amount of mercury leaks, gather it and put it in an airtight container, being sure to wear protective gloves. Never use a vacuum cleaner to clean up mercury leaks, as it can pollute the vacuum, causing it to produce mercury steam or other pollution.

#### (5) Glass Products

- ① As far as possible, use Pyrex or other shatter-proof glass products.
- ② It is advisable not to use broken or chipped glass products.
- ③ Insert a pipe suited to the cap. (You can use a few drops of glycerine, but always be sure to wear gloves.)
- ④ Dispose of broken glass contaminated with toxic materials separately.

## 8. Facility Safety Guidelines

### 8.1. Summary

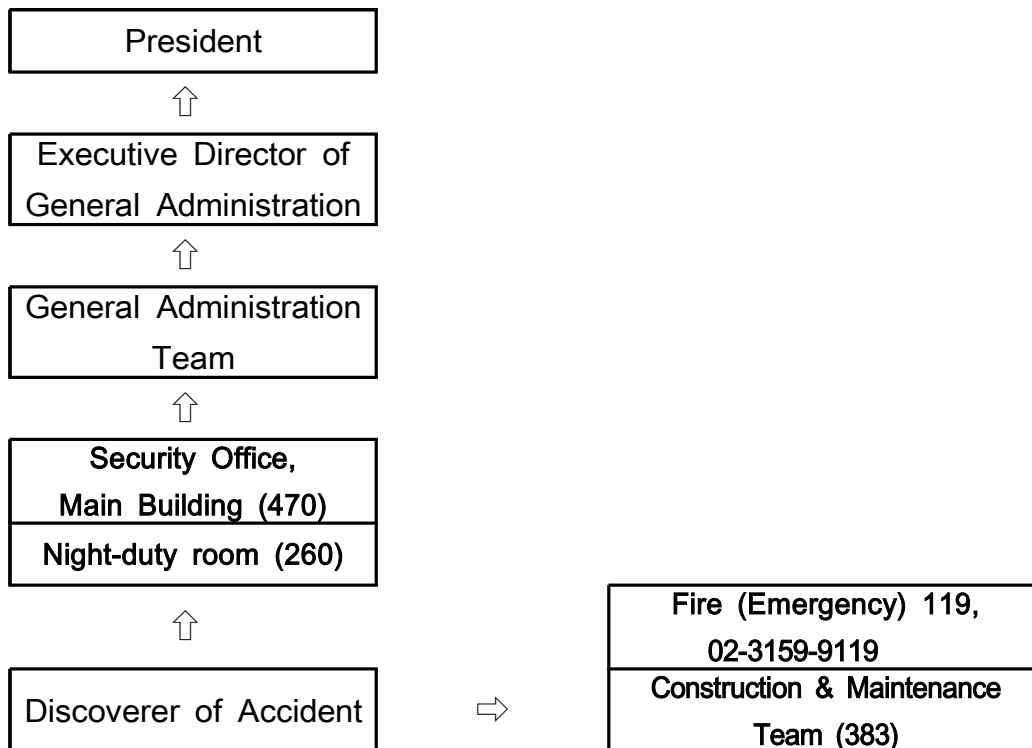
#### 8.1.1. Purpose

To provide an institutional strategy to maintain the safest facilities for a pleasant environment and safe working atmosphere for all facility users and visitors; to take measures to prevent problems, etc. in the operation of all facilities; and to ensure safe and speedy handling of problems that do arise in the operation of all on-campus facilities.

#### 8.1.2. Range of Application

Applies to all university employees, students, other members and visitors, as well as all campus facilities and equipment.

#### 8.1.3. Facility Incident Report Diagram



## **8.2. Facility Safety Guidelines**

### **8.2.1. Maintenance**

"Maintenance" refers to the activities necessary for the improvement, repair and reinforcement of buildings required over time to preserve the functionality of completed facilities and to enhance convenience and safety for building users through periodic building inspection and maintenance, and restoration of damaged sections.

### **8.2.2. Handling of Flaws**

"Flaws" refer to "anything not completed according to contract (design and specifications) by either defect in quality standard or performance, or by imperfect installation. The following can be termed flaws: "cracking, sagging, crookedness, gaps, sinking, leaking, poor operation or function, damage, collapse, adhesion, poor electrical grounding or connections which result from errors of the construction company, They include anything serious enough to obstruct safety, functionality or aesthetics of a building, facility, etc.

### **8.2.3. Inspection & Diagnosis**

#### **8.2.3.1. Types of Inspection**

##### **(1) Periodic inspection**

Periodic inspection is performed on a standard of visual inspection, and is thereby meant to judge a building's functional condition and to check whether or not a building continues to meet present usage requirements.

The management must carry out simple repairs, mending and maintenance as deemed necessary by the degree of defects/damage in accordance with periodic inspection results. They must also take necessary safety measures, such as emergency inspections or diagnosis as needed.

##### **(2) Detailed inspection**

###### **① Initial inspection**

Initial inspection refers to the first detailed inspection, within 6 months after completion or usage approval, of a newly constructed building (construction work about which public notice (including permission, approval and acceptance) was given before July 31, 2001) or a building for which the structure has been altered (including those for temporary use).

The purpose of initial inspection is, firstly, for management to obtain initial values and basic data necessary in carrying out the building's maintenance. Secondly, it is to evaluate the building's condition and areas whose maintenance should be prioritized, by investigating current defects and defects which could easily occur in the future through an investigation and observation of the building's principal elements.

Thus, when conducting initial inspection, make a detailed review of building design plans



ahead of time and figure out areas which could potentially collapse. With this in consideration, investigation and inspection must be carried out, and details requiring special care in future maintenance must be presented in inspection results.

Also, to obtain initial values, results regarding main flawed or damaged areas must be recorded on a floor plan.

## ② Detailed inspection

Detailed inspections must be carried out periodically (at least once every 3 years), based on the regulations set out in 영 Article 6, Clause 1. They must accurately judge the present condition of a building and check any changes from the last recorded conditions. To confirm whether or not the building continues to meet current usage requirements, necessary measurements must be taken and tests be carried out using basic measuring and testing equipment, together with a visual inspection more detailed than the regular periodic inspections.

In a detailed inspection, look into progress or new circumstances regarding defects and damage discovered in prior inspection and diagnosis, based on results of visual inspection, measurements and tests, and judge the condition of each of the building's main elements. The building's overall condition must be evaluated and level decided after review and comparison with previous result. Investigation results must be recorded on a floor plan, along with an investigation network about flawed and other main areas.

## (3) Emergency inspection

Although emergency inspections are based on periodic inspections, they are also carried out: when management judges necessary for safety and maintenance in response to a disaster; as an urgent, irregular inspection when the head of a related administration agency judges necessary in order to judge whether or not an area should be blocked off, restricted, etc. because of damage, severe decline in performance, etc.; and to judge emergency safety measures, such as emergency repair, reinforcement, etc. Damage inspection and special inspection are the subtypes of emergency inspection.

### ① Damage inspection

Damage inspection refers to a detailed inspection carried out to inspect structural damage resulting from a disaster or accident. It gauges degree of damage, necessity of urgent usage restrictions or prohibitions, urgency of repair or reinforcement, and the scale of repair or reinforcement to be done, for the making of decisions. To this end, select tasks, such as measuring, testing, and safety evaluation when necessary, must be carried out.

Inspection results must judge the necessity of restricting or prohibiting use of the building, as well as the necessity of emergency reinforcement and diagnosis. Management must act immediately to carry out the necessary measures.

### ② Special inspection

Special inspection is a detailed inspection carried out when judged necessary for a

building's safety and maintenance. This inspection is carried out when there is concern of uneven settlement, construction environment in the area, alteration in conditions of use for the building, etc. affecting the safety of the structure; or to judge if a currently restricted building can continue to be used.

#### **8.2.3.2. Establishment of Inspection Plan**

In order to carry out effective building inspection, a guideline plan is established for facility safety inspections and detailed safety diagnosis, allowing for confirmation, editing and supplementation in the process of putting the established plan into effect. A detailed inspection plan is to be established after a preliminary investigation is carried out on-site. When carrying out a preliminary investigation, blueprints are reviewed, site conditions and problems determined, manager and user suggestions heard, and data related to the various facilities is collected. This plan includes the following:

- (1) Building summary: name, total floor area, number of floors, height, classification, use, type of structure, year of completion
- (2) Inspection types
- (3) Main problems: condition and safety (when needed), etc. of structure
- (4) Main areas to be inspected
- (5) Articles and main equipment for investigation and testing
- (6) Labor costs plan
- (7) Planning calendar
- (8) Working safety management plan
- (9) Budget
- (10) Other: environmental costs, temporary structure

#### **8.2.3.3. Inspection Methods**

- (1) Periodic inspection
  - ① As a rule, periodic inspections are carried out with the naked eye and simple measuring equipment to detect inherent flaws, damage, etc. in a building. If potential causes of element collapse or other problems are detected in initial inspection during consistent progress observation, management must be notified immediately, so that they can perform simple repair, reinforcement or detailed safety diagnosis.
  - ② The state of organization of maintenance-related data, such as floor plans, bills, past inspection and repair records, environmental and service conditions, etc. is determined.
  - ③ Periodic inspection can be divided by element depending on the structure's status and conducted each half of the year to check the vertical and horizontal orientation of all buildings.
  - ④ Inspection results for the articles listed in clause 1) above are recorded in detail and shown on a floor plan outline as needed.
  - ⑤ In regards to abnormalities detected in a periodic inspection, photos are to be taken and kept with the report for use as illustrative material.

- As a rule, photographs are to be taken from as near the same angle as possible at each periodic inspection.
- Photographs must be sufficient to confirm the articles mentioned above.

## (2) Initial inspection

- ① Initial inspections determine characteristics of the building concerned through detailed review of floor plans and structure account statements to single out elements which could cause collapse. If a building is a high-rise or broad structure, consult management ahead of time and conduct a survey of main structural elements and space configuration to be set as the initial standard for safety management. In subsequent inspection and diagnosis, enable the tracking, checking and review of movement of the building concerned. Especially, reference points used when surveying or taking spatial coordinate measurements must be kept on record for future use.
- ② When it is judged necessary to evaluate the strength of partial elements with structural defects, damage, etc. through detailed review and site survey of blueprints, safety evaluations can be conducted after consulting with management. However, if defects or damage are extensive and critical, diagnosis must be made according to Article 2, Clause 1.
- ③ As foundational material for building safety and maintenance, initial inspection results must be recorded in detail and, if necessary, special matters noted on the floor plan.

## (3) Detailed inspection

- ① In detailed inspections, selection of structural elements or areas in need of close, ongoing investigation is decided upon analysis of problems identified in a prior inspection or diagnosis, or of preliminary investigation results.
- ② If it is judged that a change in a building's structural conditions (load, structural alterations, major structural modifications, elemental damage or reinforcement, etc.) could affect structural safety, the strength of a portion is recalculated to evaluate safety.
- ③ For the prevention of disaster, securing of safety, etc. in a building when emergency maintenance and restriction of access is judged necessary or when defects or damage are extensive and severe, management must take measures to carry out detailed safety diagnosis in accordance with Article 7, Clause 1.
- ④ As a rule, detailed inspections are carried out focusing on close visual inspection and basic non-destructive inspection.
- ⑤ When necessary, finishes (stones, tiles, wallpaper, insulation, wall boards, ceiling boards, flooring, etc.) can be partially removed from the area to be inspected.
- ⑥ In detailed inspections, measures are taken according to the provisions laid out in Article 11, Clause 1 and Article 12, Clause 2 when critical defects are found based on the provisions of Article 12, Clause 1.
- ⑦ Detailed inspection results are recorded, notes made on floor plans where necessary, and analysis / evaluation of the results is conducted.

⑧ Visual inspection and safety evaluations must be reviewed and analyzed overall, and the results must be recorded in a report.

⑨ Photographs related to detailed inspections are arranged as stated in Clause E of C1.

(4) Damage inspection

① Damage inspections are carried out when it is judged that access to a building needs to be restricted or forbidden, or when urgent repair or reinforcement is judged necessary.

② Damage inspection contents When necessary, diagnostic level material testing can be conducted after consulting with management to accurately analyse and evaluate problem issues. Partial building strength calculations and partial safety evaluations can also be conducted.

(5) Emergency inspection

① Emergency inspections are for the purpose of checking the safety of a building where there is concern of it being affected by uneven settlement, environment, fluctuations in the building's working conditions, etc., and to judge whether a restricted building is suitable for use.

② Inspection methods are the same as in detailed inspections, and inspections are carried out when management considers a problem to be severe.

**8.2.3.4. Detailed Safety Check-up**

Detailed safety check-ups are to be carried out when judged necessary by management based on safety inspection results for the prevention of disasters and securing of safety, and on facilities for which a period of 10 years has elapsed (excluding community housing and waste disposal facilities). Check-up items and methods are in accordance with "Building Safety Inspection and Detailed Safety Diagnosis Detailed Guidelines."

## 9. Information Resource Management Guidelines

### 9.1. Purpose

To provide an institutional strategy for the cultivation of close cooperation with related departments for efficient management and timely action when problems arise; and for the prevention of errors and accidents in the management of the data processing department, system and network supporting the university's information, and of the service system.

### 9.2. Items for Information Resource Management

Division	Content		Notes
Facilities & Operation System	Computer Center, Science Building (#435)	General information server, homepage server, engineering certificate server, university entrance support server, community server, etc.	UPS, management system, incubation chamber, gas fire extinguisher
	Computer Network Room, Engineering Building (#113)	University network backbone system, internet router, security system, mail system, etc.	UPS, incubation chamber, gas fire extinguisher
	Center for Technical Assistance to Small & Medium Industries Processing Room (#205)	Back-up system, cyber lecture system, IRC research system, GRRC research system, etc.	UPS, incubation chamber
	Library Data Processing Room (#205)	Book search system, homepage system, service information system, etc.	UPS, incubation chamber, management system
Location of Network Support Equipment	Science Building 1st-4th floors Machinery Building 2nd-4th floors Electronics Building 2nd-4th floors (UPS) Student Union 2nd floor Aerospace Center 1st floor (UPS) Main Building 1st floor (UPS) Library 2nd floor Center for Technical Assistance to Small&Medium Industries 2nd floor		
Other	Internet cables: KT, Dacom		

# Chapter III. Safety Control Guideline Inspection Plan

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## 1. Safety Control Guideline Inspection Plan

### 1.1. Inspection Superintendance Department

: Planning and International Affairs Team

### 1.2. Inspection Divisions

#### 1.2.1 External Inspection

1.2.1.1 Aviation related programs

#### 1.2.2 Internal Inspection

1.2.2.1 Aviation related programs

1.2.2.2 Others

#### 1.2.3 Self-inspection

1.2.3.1 Aviation related programs

1.2.3.2 Others

### 1.3. Scope of Inspection and Enforcement Agencies

#### 1.3.1 External Inspection

1.3.1.1 Aviation related programs: All internal and self-inspection items

#### 1.3.2 Internal Inspection

1.3.2.1 Aviation related programs: Table below

Division	Scope of Inspection	Enforcement Agency
Aviation Safety Program	- Flight safety carried out by the responsible parties, Method of inquiry into aviation accidents, student flight training guidelines, aviation safety, etc.	Aviation Safety Education Center, Flight Training Center, Department of Aeronautical Science and Flight Operation
Flight Management Agency Blood Pathogen	- Blood pathogen regulation program for the Flight Management Agency	
Flight Management Agency - Staff Safety Program	- Flight Management Agency Staff Safety & Health Program	
	- Risk diagnosis, evaluation & regulation guidelines, individual safety programs, responsible parties	
Flight Management Agency - Health & Safety Control	- Health & safety guidelines for the Flight Management Agency	
	- Health & safety rules, fire prevention,	

<b>Guidelines</b>	facility maintenance, etc. agency safety management guidelines	
<b>Flight Management Agency - Accident &amp; Disease Prevention Guidelines</b>	- Accident & disease prevention guidelines for the flight management agency	
	- Those responsible for health & safety, training program	

1.3.2.2 Others: Table below

<b>Division</b>	<b>Scope of Inspection</b>	<b>Enforcement Agency</b>
<b>Vehicle (Safety) Policy</b>	- Guidelines for the use of university vehicles, for the use of safety belts, etc.	Departments/Team recommended by the General Administration Team per request of the Planning & International Affairs Team
<b>Blood Pathogens</b>	- Explanation about contagion of blood pathogen diseases which could occur on the job, such as HIV, HBV, etc.	
<b>Chemical Cleanliness Program</b>	- Maintenance & standards for chemicals easily exposed to in laboratories, and approaches to possible accidents	
<b>Hazard Information Program</b>	- Standards for handling hazard information on chemical supplies, education program, disposal containers for chemical supplies, labeling of apparatus, evaluation forms, etc.	
<b>Inventory Control</b>	- Guidelines for chemical supplies inventory control carried out by the responsible parties	
<b>Locking Mechanisms &amp; Notices</b>	- Locking mechanisms to regulate hazardous energy, and their notices (tag label)	
<b>Ladder Safety</b>	- Safety maintenance for the various types of ladders, how to store & handle ladders	
<b>Office Safety</b>	- Air purification, office noise control, lighting & eye fatigue, ergonomic office layout, fire prevention checklist, office safety checklist	
<b>Protection from Falling off Horses</b>	- Guidelines, education, regulatory procedures, etc. to prevent falling from horses, carried out by the responsible parties	
<b>Fire Prevention Program</b>	- Conveyance process for emergencies, fire prevention program & policy	
	- Emergency exits, maintenance of extinguishing equipment, etc.	
<b>Fire Combustion Program</b>	- Installation & placement of fire equipment (extinguishers, etc.) and their labeling, supervision, maintenance and education program	

### **1.3.3 Self-inspection**

1.3.3.1 Scope of Inspection: All internal inspection items

1.3.3.2 Enforcement Agency: Related Divisions

※ Detailed regulations and inspection table: To be determined upon receipt of inspection details from each division.

## **1.4. Inspection Periods**

### **1.4.1 External Inspection**

1.4.1.1 Aviation related programs: Once every 3 years (2010, 2013, 2016, 2019...)

### **1.4.2 Internal Inspection**

1.4.2.1 Aviation related programs: Once every 2 years (2009, 2011, 2013, 2015...)

1.4.2.2 Other related programs : Once every 2 years (2010, 2012, 2014, 2016...)

### **1.4.3 Self-inspection**

1.4.3.1 Aviation related programs: Annually (2009, 2010, 2011, 2012...)

1.4.3.2 Others: Annually (2009, 2010, 2011, 2012...)