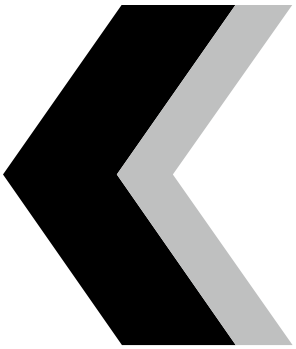
2014

Health and Safety Manual

- A Safe Workplace and A Fulfilling Study Environment-



Kumamoto University

Kumamoto University

Introduction

Conditions surrounding universities are becoming complicated along with the rapid development in education and research activities of universities. While social concern for universities is growing more than ever with the growing needs for open minded university to communities, the establishment of fulfilling health and safety management system is required as various incidents related to safety and health management have occurred in universities. Assurance of the safety and health for teaching staff and students at universities has became a very important matter in the education and research activities, thus countermeasures for the safety and health are a critical issue that universities must address with a highest priority.

Under these circumstances, Kumamoto University reviewed the former safety and health management system and established a new system as a National University Corporation because of being transformed into an independent corporation in April, 2004.For the enforcement of the new safety and health management measures, the important things are not only the improvement of facilities and equipment maintenance related to the safety and health, but also supports of the operation side, such as the establishment of health and safety management system and thorough safety and health education for teaching staff and students. This manual book was edited with the purpose of the safety and health education for teaching staff and students.

It is our hope that teaching staff and students fully understand the background of this manual was edited and give their full attention to prevent accidents in the education and research activities with using this manual.

March, 2014

Chairman of the Central Safety and Health Committee
Mitsuo Morozumi
Chief of the Health Care Center
Hideki Kishikawa
Chief of the Environmental Safety Center
Yoshihiro Ogawa

— Basic policy for the assurance of safety and health in Kumamoto University —

For the safety and health of teaching staff, the enforcement of safety and health management is required based on the Industrial Safety and Health Act, and for the safety and health of students, the enforcement of safety and health management is required based on the School Health and Safety Act. Thus, the university has a responsibility to prepare environments where teaching staff and students can work and study safety. The university aim to, not only follow the minimum standard rule required by low for the prevention of incidents, but also ensure the safety and health of teaching staff and students and realize a fulfilling workplace and a study environment by promoting comprehensive and planned measures such as the clarification of responsibility and the promotion of voluntary activities based on “The safety and health management rules for Kumamoto University staff” established by the university to prepare a good educational research environment.

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Health

Check ☑

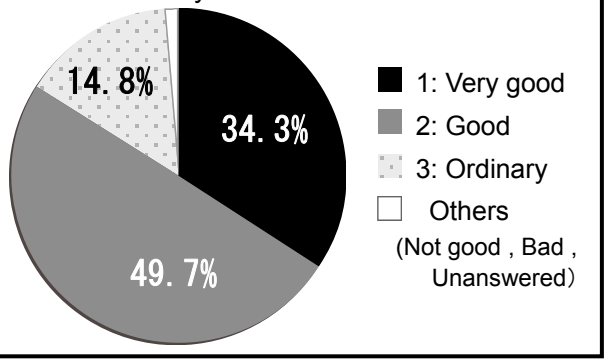
The result of a questionnaire about the general education “Basic”

Kumamoto University provides a general education” Basic” for freshmen. (Elective course for students in faculty of education and science)

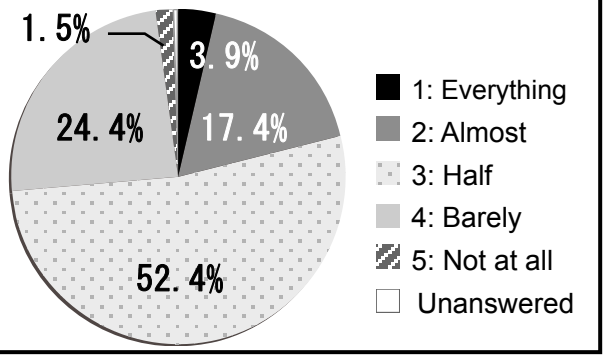
In this lecture, there are two parts: “Risks around our life” as a safety education and “Problems of drug abuse, smoking and drinking in universities” as a health education. We use parts of this manual for these parts.

1,264 freshmen responded to the survey of 2013.

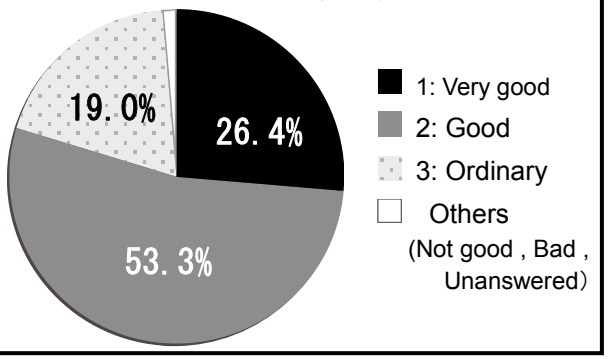
Q1：How would you evaluate the overall “Health and safety manual”?



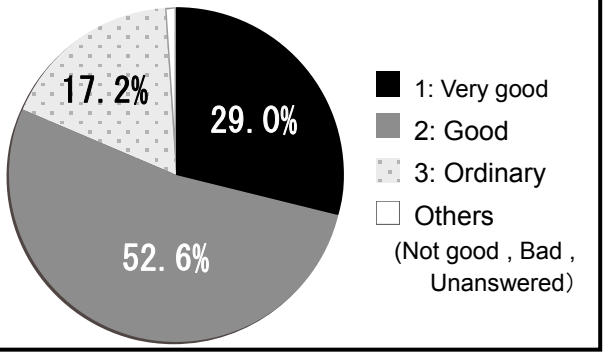
Q2: How much do you know about the contents of “Health and safety manual”?



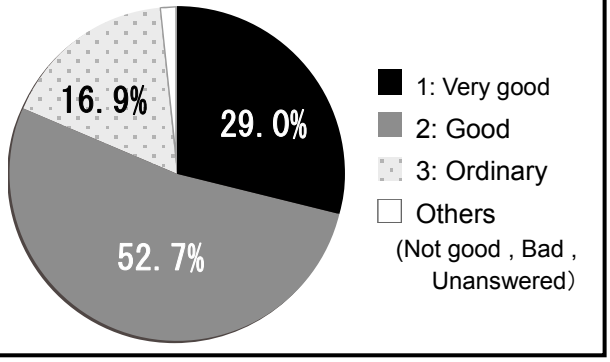
Q3: How do you think about the contents of “Preparation for emergency “in this manual?



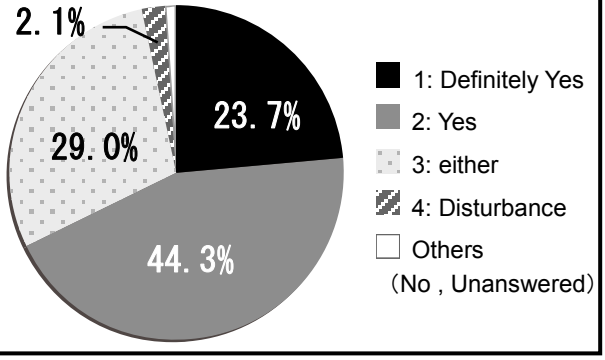
Q5: How do you think about the contents of “Safety” in this manual?



Q7: How do you think about the contents of “Health “in this manual?



Q9: Do you keep this manual handy while in Kumamoto University?



※In case of less than 1% of each data, it is not indicated in pie chart. The summarized data represent as □.

Preparation for emergency

1 Do you know how to get disaster prevention information in Kumamoto City?

Disaster information E-mail services of Kumamoto City
(Pre-registration is required)

（1）Emergency disaster prevention information（2）Disaster prevention information
（3）Weather information（4）Fire information
（5）Information can be received by E-mail from Kumamoto City.

＜How to register＞

If you send a blank E-mail to「entry-kumamoto@fastalarm.jp」, you will receive URL for registration by E-mail. Then, access to the URL and your registration will be completed.

Disaster prevention information E-mail services of Kumamoto Prefecture
(Pre-registration is required)

You can receive information, such as weather warning and advisory for landslide, tornado, earthquake, tsunami, volcanic explosion and river level by E-mail on the mobile from Kumamoto Prefecture.

＜How to register＞

If you send a blank E-mail to「entry@anshin.pref.kumamoto.jp」, you will receive URL for registration by E-mail. Then, access to the URL and your registration will be completed.

Other useful websites about disaster prevention information

1 The website of Kumamoto City
http://www.city.kumamoto.jp/
2 The website of Kumamoto Prefecture for disaster prevention information
http://cyber.pref.kumamoto.jp/bousai/
3 The website of Kumamoto Prefecture for disaster prevention information system
(For mobile only)
http://www.mobile.bousai.pref.kumamoto.jp

Organization related to disaster preventions

1 Kumamoto City Hall：096-328-2111
2 Kumamoto flood control head office：096-328-2222
3 Kumamoto City disaster prevention head office：096-311-1111

Register the disaster prevention information email services of Kumamoto City for the preparation.

Preparation for emergency

2 Do you know where evacuation areas in Kumamoto City are?

There are two types of shelter: pre-designed evacuation areas for the situation when a whole region is in danger of expanded fire by an earthquake and temporary shelters for floods.

Caution: Kurokami Campus of Kumamoto University is a pre-designed evacuation area. However, we do not use the area during time of flooding since there is a possibility of floods with a depth of one to two meters in Kurokami South Campus.

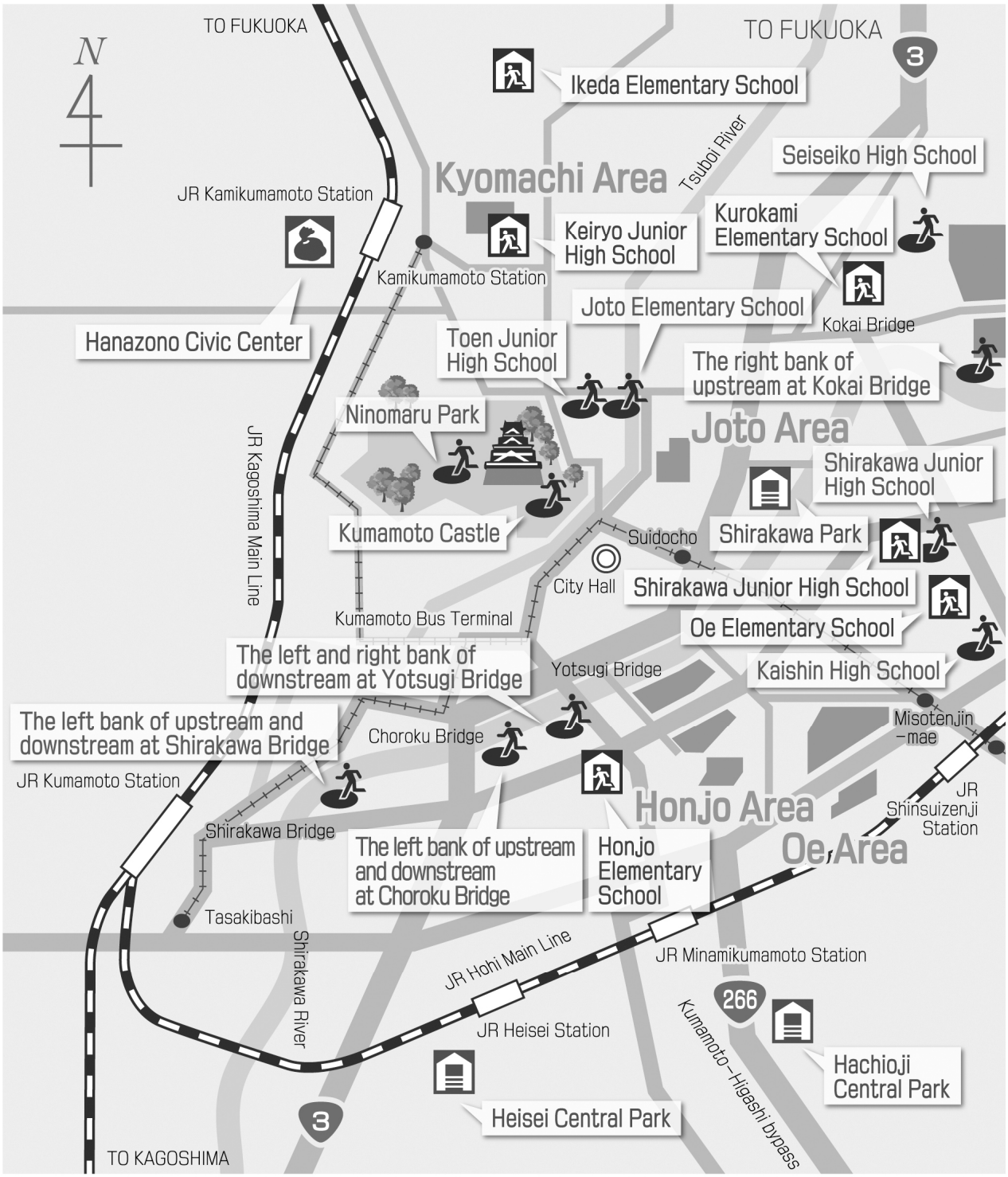
Kumamoto City prepared storages for disaster prevention and stockpile.

Check the website of Kumamoto City for detail information. Especially, read the revised edition "Disaster prevention manual for my home" once at least.

The website of Kumamoto City：http://www.city.kumamoto.jp/
The website of Kumamoto City Hall >Top of Chuo-ku homepage>
Search from categories>Prevention disaster/town/plan>Prevention disaster/safety>
Prevention disaster>Related links – revised edition "Disaster prevention manual for my home"

Check the following page "Evacuation areas around Kumamoto University" as well.

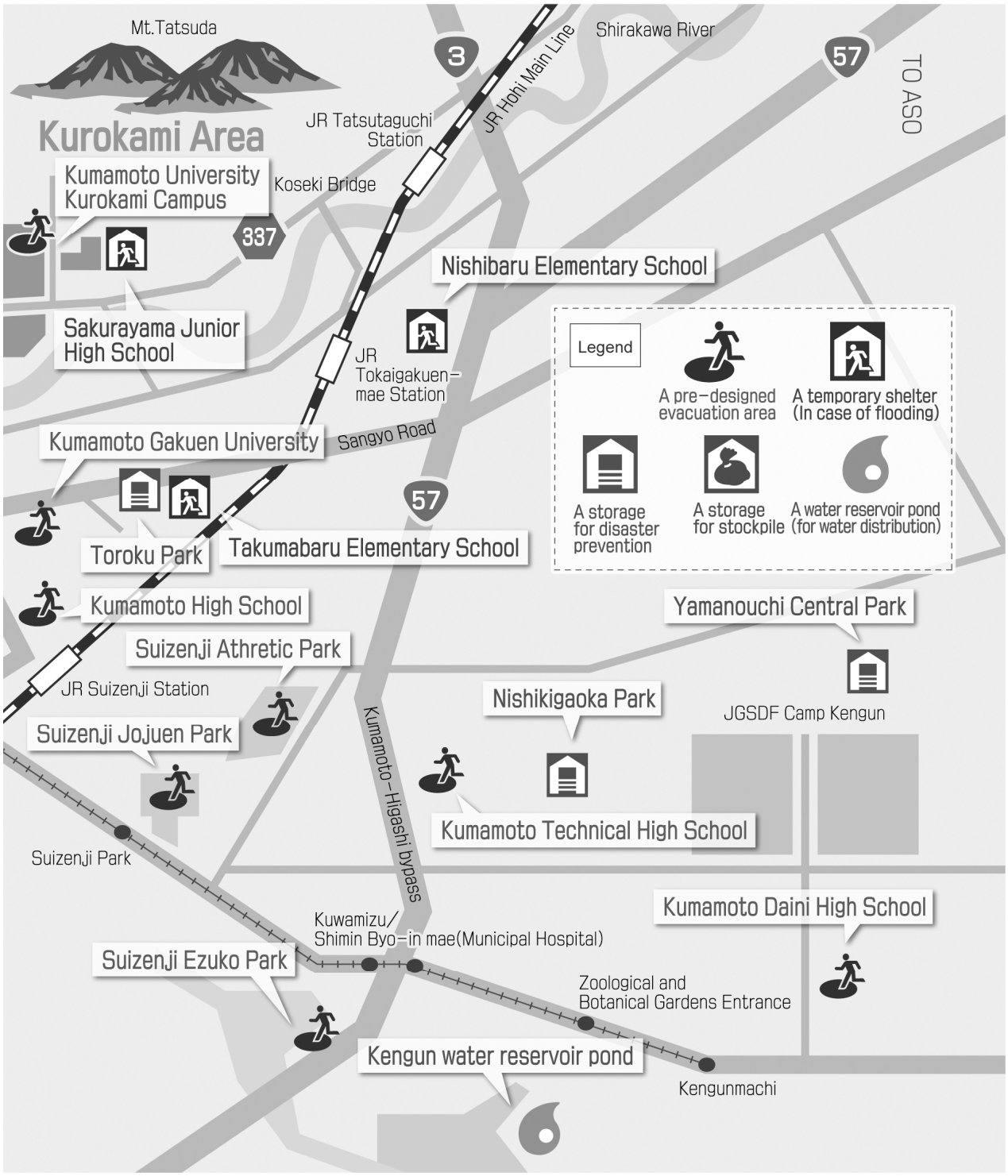
Check a pre-designed evacuation area and a temporary shelter (in case of flooding) in your neighborhood in advance.



Evacuation areas around Kumamoto University

Caution

- ○This map is a copy of the homepage of Kumamoto City and does not include all information.
- ○Pre-designed evacuation areas are for the situation when whole regions are in danger of expanded fire from an earthquake.
- ○Temporary shelters are for the case of Sirakawa or Tuboigawa River flooding.
  Be careful that these shelters are different from pre-designed evacuation areas.
  Basically, elementary schools and junior high schools in Kumamoto City are pre-designed shelters during in case of flooding.



HAZARD MAP

○Emergency foods and everyday goods are in stock in the storages for disaster prevention and stockpile.
In addition, parks where there is a storage for disaster prevention are installed an earthquake-proof underground storage tank (about 100 ton), which can water service at emergency.

○If an earthquake with a seismic over intensity of 6 lower hit, an emergency shutdown valve of Kengun water reservoir pond (for water distribution) works, thus, 12,000 ton of water can be supplied.

Preparation for emergency

3 Do you know the appropriate actions in the case of an earthquake?

At first, protect yourself for two minutes after the beginning of an earthquake

1 (If you cannot move) Protect yourself, especially your head from dropping or falling objects.
2 (If you can move) Huddle under a firm desk or a table. Or stay close to a wall or a column.
3 Open the door to secure an evacuation route.
4 Do not rush outside.
5 If you are in an elevator, press all the buttons of destination floors and get off at the stopped floor.
If you are stuck in an elevator, press an emergency button and wait for a rescue.
6 If you are driving, pull over the car on the left slowly and turn off the engine.

Cover your head with your bag to absorb impact from falling objects by any chance.

If you huddle under a firm desk or a table, make sure if there are no risk of falling objects around there. Prepare safety spaces to be able to take refuge in case of earthquakes on a daily basis.

If you can move, extinguish a fire and open the door for evacuation. It prevents that you might be locked in the room by dropping down or falling objects.

If you cannot move, protect yourself from dropping or falling objects, especially your head.
If you can move, huddle under a firm desk or a table. Or stay close to a wall or a column.

Preparation for emergency

4 Do you know the appropriate actions in immediately after an earthquake?

1 Put out any open flames. Shut off a gas valve.
2 Unplug electric appliances. And shut off a circuit breaker until you confirm no risk of a voltage leak.
3 Take emergency actions for things which are about to fall or drop down.
4 Give first-aid if there is an injured person. Ask for help as necessary.
5 Listen to the car radio to obtain the situation while driving.
Leave a note written your contact information and ignition key attached when evacuating.
Then take your car registration with you and evacuate on foot.
Park your car on the left avoid drive way and sidewalk as much as possible so as not to block evacuees or emergency vehicles.

＜If a fire breaks out＞

1 If a fire breaks out, inform others in a loud voice. Or use the fire alarm.
2 Put out a fire with buckets of water, extinguishers, and fire hydrants and so on.
3 If the fire reaches the ceiling, seek refuge outdoors immediately.
Shut doors and windows to prevent the fire from spreading in some cases.

Shut off the circuit breaker when evacuating.
The fire may occur by electricity in case of breaking or full of with gas in the room when electricity was restored.

＜If you find risks, such as collapse of a building,＞

1 Inform others in a loud voice immediately.
2 Contact a staff in charge based on “The emergency contact communication network”.
3 Keep away from the hazardous areas.
4 If there are seriously injured people, call the fire service number 119

Wear comfortable shoes (athletic shoes) to avoid injury when evacuating.

For the prevention of second disaster, put out fires immediately, open doors to secure an exit, shut off a circuit breaker, wear comfortable shoes, and go to the safety place outside in preparation for aftershocks.

Preparation for emergency

5 Do you know the appropriate actions after an earthquake strikes?

Things to be careful of evacuation
1 Do not use an elevator. 2 Teaching staff actively and preferentially assist disabled people, students, and visitors who are unfamiliar with the facilities. 3 Leave doors open when evacuating because the door would not be opened by deformation. But in case of a fire, close doors and windows to prevent the fire spreading. 4 Protect your head from falling objects, such as glass and signboards. 5 Stay away from things which have a risk of collapse and fall, such as an inclined building, walls, furniture and fixtures. 6 In case of a fire, make yourself as low as possible, covered your mouth and nose with a wet handkerchief or a towel so as not to breathe the fume. 7 Once you get outside, never go back to the building again.

Gathering information
1 Gather accurate information from reliable sources, such as teaching staff, TV, radio, fire department, and government. Before turning on TV and PC to obtain information, make sure any risk of electrical leakage and reset a breaker. 2 Be aware of uncertain information, like false rumors. 3 Each dean of department timely reports the damage to the disaster countermeasures office as well as orders students later actions in view of the damage of the said faculties according to the policy by the office. 4 Confirm students and teaching staff's safety in case of a large earthquake.

To teaching staff
＜How to order an evacuation＞ 1 Use a broadcast facility. If it is not available, teaching staff go around each room and order an evacuation in a loud voice. 2 Refrain from calling except an emergency call to avoid telephone congestion (A condition that a phone call cannot be connected due to congestion). Example: "A fire breaks out from the kitchen of the OO faculty on the third floor" "Please evacuate immediately to OO in order to avoid fire origin please."

"Please do not use an elevator, take stairs please."
"A person in charge (or chief of division) confirm evacuation situation of students and teaching staff immediately after evacuation."

＜Confirm and report evacuation situation＞

1 Inform specifically the number of evacuated people, injured people, and people who need for aid.
" OO attendees of OO lecture in OO faculty evacuated safely."
" O people are injured, and O staffs of OO division are helping them. Rest of the people, O people evacuated safely."
"O people failed to escape and wait for help on the rooftop. Rest of the staff, O people evacuated in safety."

2 Report to the office in charge of department based on the emergency contact communication network.

Help each other and cooperate with your family and your neighbors.
Gather accurate information.

Preparation for emergency

6 Do you know how to prepare for storms and floods?

Preparation for wind and flood damage
1 Always maintain facilities and equipment. 2 Clean drains of a roof and the outside on a regular basis. 3 Study the previous disasters and the risks of disaster in the surrounding area. (Example: Refer to the revised edition “Disaster prevention manual for my home” edited by Kumamoto City.)

When a risk of wind and flood damage(typhoon) is approaching,
1 Pay attention to the disaster information timely, such as accurate weather warning and flood forecasting. 2 Take all steps to ensure the safety of students, such as class cancellations and school closed. 3 Do not leave things which are easy to scatter with strong wind around campus, the university, and the rooftop. 4 Dangerous things, such as sign boards, a net for preventing balls, a soccer goal need to be lain down on the ground in advance or to be removed. 5 Close entrances and windows tightly, set up sandbags and water stop boards as necessary. 6 Move important documents, equipment, books, materials and chemicals to a safe place as much as possible.

Evacuation advisory and evacuation directive
1 Information for evacuate preparation ○ Persons who need time to evacuate, such as children, aged people and disabled people, start to evacuate as soon as possible. ○ Pay attention to the weather information from TV/ radio, and prepare for it. 2 Evacuation advisory ○ This is not an order, but prompt evacuation at an early stage for safety. ○ Persons who are in an evacuation target area try to evacuate at an early stage. ○ Do not evacuate by car because roads would be started flooding. 3 Evacuation directive ○ Persons who are in an evacuation target area must evacuate from dangers because risks of flooding close in the face, such as overflowing from river and burst banks.

An agreement about handling classes in the case of emergency situation

(November 11, 2009 by Committee of instruction section)

1 The purpose of the agreement

The agreement provide necessary matters about handling classes to ensure the safety of students when a heavy snow warning, a storm warning, a blizzard warning, or a heavy rain and flood warning (hereinafter referred to as “weather warning”) is issued.

2 Lecture cancellation due to weather warnings

When a storm warning is issued for Kumamoto region (Kumamoto city)in Kumamoto Prefecture, the measures are as follows;

- First lecture will be canceled when the warning is still activated until 6:40 am.
- Second lecture will be canceled when the warning is still activated until 8:20 am.
- Third lecture will be canceled when the warning is still activated until 10:50 am.
- Fourth and Fifth lectures will be canceled when the warning is still activated until 0:30 pm.
- Sixth and Seventh lectures will be canceled when the warning is still activated until 4:00 pm.

Kumamoto Prefecture is susceptible to torrential rains and typhoons. And the coast of Kumamoto has a risk to be affected by storm surge. Do not approach the coast when a typhoon is approaching.

You should know that storm surge occur especially a south-facing bay or a deep-set bay.

Prepare and pay attention to storms and floods since an occurrence of those can be predicted to some extent.

Preparation for emergency

7 Do you know the appropriate actions after a storm and a flood occurs?

1 Assurance of safety
If there are children, aged people, and disabled people, try to start to evacuate at an early stage.

2 Cooperation
Evacuate with several people together as much as possible.
Evacuate immediately with following the instruction of rescue team.

3 Clothes
Wear comfortable shoes with shoelaces can tighten up, like athletic shoes.

4 The depth of water that we can evacuate on foot
The depth of water that we can walk is up to a depth of around a knee only as a guide.
If you fail to escape, wait for a help in a high place without any strain.

5 Walking in water-covered places
Take careful steps in water with checking by a long stick. Take a safety measure, such as using rope for evacuation.

6 Avoid a risk
Keep away an area where a landslide may occur, and avoid crossing the bridge of a swollen river.

In case of torrential rain, a river can rise to a dangerous level for a short time.

You should know that a river can rise to a dangerous level by water comes from the upstream, even if it rains away from your area.

In addition, when using a car, be aware that there is a risk to be trapped in the car since water flows to lower places.

There is a risk of landslide disasters. Be aware of a landslide and a mudslide.

Pay attention to the sign of landslide disasters: muddy water, smell of sands, and some noises coming from mountain or cliff.

The water level of a river may become lower suddenly in case of a mudslide.

Pay attention to secondary disasters (river flooding and landslides) after a storm and a flood occurs.

Preparation for emergency

8 Do you know how to inform safety information?

How to inform your/someone's safety

1 Pay-phone

Home telephone will be restricted to avoid congestion control, but Pay-phone will not.

2 Disaster Emergency Message Service dial 171

This is a system we can leave and hear a message of your/someone's safety information from the disaster area.

Application procedures or contracts are not necessary for using this system.

＜How to use this system＞

（1）Dial 171

（2）Dial "1" to record a message , dial "2" to playback a message

（3）If you are inside the disaster-stricken area, dial the telephone number of your house

If you are outside of the disaster-stricken area, dial the telephone number of a person inside the disaster-stricken area, starting with the area code

（4）Record (within 30 seconds) or playback a message

※ Mobile phones cannot be used for this system because the areas are defined with the area code.

3 "Disaster Message Board Service" for mobile phones and PHS

This is a safety confirmation system that the people inside the disaster-stricken area register a massage to the "Disaster message board "using their mobile phones and PHS.

Sending a mail is possible.

（NTT docomo group will add a system in the event of a big disaster.）

4 A text message

5 Send an E-mail for your safety information to the following emergency contact E-mail address of Kumamoto University: kumadai.anpi@gmail.com

Write your affiliation, grade (job title), student number, name, and condition briefly.

Example: the faculty of OO, second grade, the number OOO-OOOO, Taro Kumamoto at home, no injured

※ How to use "Disaster Emergency Message Service dial 171" and "Disaster Message Board Service" are as follows:

・Refer to the following web site of Telecommunications Carriers Association, "How to make a phone call in case of disaster". (http://www.tca.or.jp/infomation/disaster/index.html)

・Service practice days: the first and the 15th of every month, from January 1 to 3, from August 30 to September 5 during Disaster prevention week, and from January 15 to 21 during Disaster prevention and volunteer week

Discuss how to confirm safety information with your family.

Preparation for emergency

9 Do you know the appropriate actions when a fire breaks out?

The measures to be taken when a fire breaks out

1 If a fire is small, carry out the appropriate procedures and methods to extinguish the fire without panic.
2 Cut off gas sources and power sources as far away from the fire as possible.
3 Remove all combustible materials from the area in order to cut off all sources of the fire.
4 If your clothes catch fire, call someone to help extinguish the fire without panic. Or if there is a shower nearby, use it immediately.

How to use a fire extinguisher

Take the most effective and appropriate extinguishing method for extinguishing the fire depending on the type and size of the fire. There is no fire extinguishing agent that is effective on all types of fire. Always have full knowledge of the whereabouts of fire extinguishers, the different types, and how to use them.

1 The types of fire extinguishers

	Ordinary fire	Oil fire	Electrical fire
Colors of indication	white	Yellow	Blue
Powder fire extinguishers	○	○	○
Loaded stream fire extinguishers	○	○	○
Foam fire extinguishers	○	○	×

In addition, there are fire extinguishers of carbon acid gas (effective for putting out fires caused by organic solvents, oil, and electricity), and fire extinguisher sand (effective for putting out fires caused by metals, especially metallic sodium and metallic potassium).

2 How to use a fire extinguisher
（1）Pull the safety pin upwards.
（2）Hold the hose and aim at the fire. (aim at the base of the fire, not at the flames)
（3）Grip the levers tightly during spraying.

Caution: A fire extinguisher is capable to put out a fire less than human’s height.

Evacuation

1 When a fire or gas cannot be controlled by the above mentioned procedures (If the fire reaches human's height or the ceiling), seek refuge outdoors right away.
Always have full knowledge of the whereabouts of escape chutes and emergency slow-descent machines as well as how to use them.

2 After handling as much as possible the gas source, heat source and hazardous materials, check to see if there is people failed to escape. Then, inform the all department using the method described below.

Report and contact

Weekdays From 8:30 a.m. To 5:15 p.m.

1 Inform others of the fire quickly, at the same time, activate the fire alarms installed in each hall way. (The fire alarm will sound and the fire hydrant pumps will be activated)

2 Automatic fire alarms are installed in almost all places in each department. Therefore, if a fire occurs somewhere, the alarm located on the same floor of the department will be activated and at the same time this signal will be received by a fire detector installed in a designated place. In this way, the location of the fire will be known right away.

3 The emergency contact person (the person in charge for the affected site) should assess the size of the fire and decide whether evacuation is necessary or not. In the meantime, dial 119 to report the incident.
＊The person in charge of accident prevention (who is also the person responsible for fires) in each room is also the contact person for that room.

4 The emergency contact person must inform the fire defense controller (a chief of division) and the person responsible for fires in other rooms of where the fire is and of the situation. Inform the entire building through the use of a megaphone or telephone.

5 Anyone who hears the fire alarm or who is informed of the fire should immediately pick up the nearest fire extinguisher, proceeds to the site of the fire, and help to put out the fire. However, people who are not familiar with the positions of hazardous materials (Example: metallic sodium) surrounding the site of the fire should proceed with extinguishing the fire carefully so as not to make the fire worse.

If the fire becomes larger, people who are not familiar with the situation of the fire must evacuate quickly. People who know the situation cooperate with fire fighters to give information of fire sources.

Weekday nights after 5:15 p.m., weekends, and holidays

1 Press a fire alarm located in any hallway.

2 Signal received by fire detector. (same as during the daytime)

3 As necessary, the emergency contact person (the person responsible for the affected site) should dial 119 right away to report the fire.

4 Go to each room to let people left behind know the fire situation with a megaphone.

5 Report the fire to the fire defense controller (a chief of division).

6 Report the fire to the dean of the department and to relevant teaching staff.

When a fire breaks out, put out a fire immediately without panic.
If the fire reaches human's height or the ceiling, seek refuge.

Preparation for emergency

10 Do you know what to do for about injuries?

If you get injured by some chance, you should notify your boss or academic advisor and seek medical treatment from a doctor immediately.

If you try to hide it and let it become worse, not only will it make you unhappier but it will also cause problems for the people around workplace.

Observe the following instructions and try to cure yourself as fast as possible.

1 Do first-aid properly or see a doctor no matter if it is small injuries and burns.
If you leave it as is, it might become worst later on.

2 If foreign objects get into your eyes, wash them out without rubbing them.

3 If the case of bruises and sprains, there is a chance of internal bleeding or bone fractures even if there are no wounds, see a doctor.

4 In the case of staff's on-the-job injury, inform the office in charge of it immediately (Personnel and Labor division, extension: 3125) and get medical treatment.

5 Report the situation, why you got injured, in detail to your boss or academic advisor. Doing this will be helpful in trying to prevent recurrences of the same accident in the future.

6 Specific treatments

① Lay the person flat on his/her back on the ground. (It prevents the person from falling down due to shock.) If the person's face is flushing, you should tilt his/her head slightly up. If he/she is vomiting, tilt his/her head on its side.

② Check for symptoms carefully, such as bleeding, burns, and fractures. Prompt treatment needs to be taken especially massive bleeding, respiratory arrest or poisoning.

③ If it is necessary to take off his/her clothes, you would better to cut clothes so as not to try to take them off forcedly.

④ When you call a doctor or an ambulance, give the following information of the person.

i The location of the person(directions of how to get there, landmarks)

ii The type, cause, and extent of the injury

iii first-aid given on the spot

⑤ Do not move the person more than necessary. Try to keep him/her as warm as possible.

⑥ Do not give any water or others liquids to unconscious person.

⑦ Try not to show any of own injuries to the person and try to cheer him/her up.
Keep bystanders away from him/her as much as possible.

Preparation for emergency

11 Do you know first-aid for injuries caused by chemicals?

Treatment for the skin
Quickly rinse the affected area with a large amount of clean, cold water for more than 15 minutes. For affected areas that generate heat when water is used due to such chemical substances as concentrated sulfuric acid, first use something dry towel, filter paper, or tissue paper to quickly wipe away the majority of the chemical substance. Then rinse the affected area with a large amount of water all at once. Acids and alkalis will often remain in the crevices of the skin or between hairs in the skin, so you should neutralize acids by using weak alkali water solution and neutralize alkalis by using a 2～3% acetic acid solution or lemon juice. In the case of carbolic acid, you should neutralize the affected area with a weak alkali, after having rinsed it with alcohol. Then consult a skin doctor for treatments to prevent skin ulcers.

Treatment for the eyes
Rinse the affected area with a large amount of water as soon as possible. Especially alkali can erode your eyeballs, so you should consult a doctor after having rinsed the affected area well. Eyewash fountain is effective for eye washing. But if you do not have it, you should repeatedly stick your head in a lavatory sink that is overflowing with clean water. At first you should close your eyes, then after a little while you should open and close your eyes during you stick your head in the water. You can use gentle water flow from a water tap that is connected to a rubber tube. However, be careful of a fast water flow that can put pressure on things such as acid on your face and also cause the surface of eroded skin to peel off. Do not apply neutralizer agent to your eyes. After rinsing out your eyes, you should apply thick gauzes to them, keep them in place using eye patches, and then get a doctor treatment as soon as possible.

Treatment for respiratory organs
Remove the person to a clean air place quickly. Remove contaminated clothes, wash skin, and keep the person warn and inactive. You need to provide oxygen inhalation or rescue breathing in a critical condition. Concentrated exposure to acid mist and chlorine gas can cause damage to not only the mucous membranes of organs but also the alveoli, and cause bronchitis, pneumonia, and accumulation of fluid in the lungs (by blood plasma penetrating the lungs), which cause difficulty in breathing in turn in turn. It is necessary to get medical treatment by a doctor since these chemicals can also cause shock.

Treatment for accidental ingestion
There is a method to induce vomiting with a large amount of water or milk. However, in case of accidental ingestion of strong acid, strong alkali, organic solvents, petroleum products, and volatile substance do not try to force the person to vomit. Drinking milk and raw egg to normalized pH balance of the digestive tract is effective for acid and alkali. Since there is a chance of death in only a few minutes time due to damage done to your stomach or esophagus, getting treatment is a race against time. If the person is unconscious, you need to call an ambulance right away. Be sure to keep the person warm and inactive and to look out for shock or respiratory paralysis.

12 Do you know how to treat external injures?

It is necessary to do three treatments for external injures: stop bleeding, prevention of bacterial infections, and pain relief.

Regular injuries
Put pressure on the hemorrhaging area with sterilized gauze to stop the bleeding. Apply bandages if necessary. Rinse the wound area with clean water at first if it is dirty. It is effective to cool the wound if it is swelling and throbbing with pain.

In the case that a main artery is injured
Put pressure on the area of the wounded artery that is closest to the heart with the tip of your finger quickly and tie a tourniquet. Elevate the wound above the level of the heart. Do not various kinds of treatment on the surface of the wound. For example, there is the risk of heavy bleeding when removing things such as pieces of clothes and glass from the wound. In addition, it is necessary to be careful not to try to stop the bleeding so much that it ends up trapping germs inside the body because bleeding helps to release germs out of the body. Use gauze on any wounds, not absorbent cotton. Do not apply band-aids to wounds directly. Do not use anything that will stick to the skin. If you do not have any gauze, you can use a washed handkerchief temporarily. The chin and face tend to bleed a lot, even small wounds. Since it is difficult for ordinary people other than medical experts to stop main arteries from bleeding by putting pressure on them, try to stop the bleeding by pressure as first-aid such as using gauze, washcloths, and handkerchiefs on the wounded area.

Methods to stop the bleeding 1： Pressure with finger method

It is advisable to pressure on the artery closest to the heart without touching the wound.

【Location of wound and corresponding finger pressure area】

- Back of the head

  0.8-1.0cm away from the back side of the center of the ear
- Lower part of the face(chin)

  About 1 cm away from the corner of the lower part of the chin
- Upper chin

  About 1.2-1.5 cm away from the collarbone going toward the chin
- Armpit (Upper area of the shoulders and arms)

  Locate the center of the upper part of the collarbone, go inwards, and then put strong pressure on the area toward the first rib.
- Upper arm and forearm

  Put strong pressure on the inside of the upper arm (the inner part of the biceps) toward the bone.
- Finger

  Hold down from both sides at the place near the base of the finger.
- Thighs

  The center or slightly inner side of the line that separates the pelvis and thighs.
- Lower thighs

  In the center of the back part of the knee joint.
- Feet

  Near both sides of the base of each toe

Methods to stop the bleeding 2：Stopping the bleeding with tourniquets method

Use for the thighs and upper arms mainly.

Since it is difficult to stop the bleeding for long time the pressure with finger method, you should use a tourniquet (washcloths, thick rubber tube, or slings can be used) while also carry out the pressure with finger method when you are going to take an injured person to a hospital.

＜Things to remember when using tourniquets＞

- Do not place tourniquets directly on wounds.
- Tourniquets should be thicker than 10mm.
- If a tourniquet it too loose, it will only stop the flow of blood in the veins and not the arteries. Thus causing blood congestion and more bleeding. Therefore, tourniquets should be applied so that the pulse in the periphery region will be disappeared.
- Use folding slings if you do not have tourniquets.
- When you use tourniquets, do not do any treatment that will cover them up. It is better to attach a tag written the time that you first applied the tourniquet on it and report it to the doctor.
- Loosen up the tourniquet for about five minutes every one hour. During this time, use sterilized gauze on the wound and applies a sufficient amount of pressure.

Head injuries

Light cerebral concussion can be cure to stay inactive for several seconds to several minutes. It is essential to be inactive in the case of cerebral contusions and cerebral compressions. The person should lie down flat or be made to lie down after they have regained consciousness. Cool off the person's head and have him/her seen by a specialist (brain surgeon). When transporting the person necessarily, be sure to use a stretcher and do not make him/her walk. It is impossible to differentiate between cerebral concussions and cerebral contusions just by the symptoms. Therefore, the person should be better to see a cerebral nerve surgeon even if he/she has a brief impairment of consciousness. In the case that a wound accompanies the head injury, you should cover the wound by applying gauze to it without touching the inner part of the wound (It has risk to contract cerebral meningitis if germs get into the wound.)

＊Characteristic symptoms

Cerebral contusions：The person will go into shock right away after being injured.
Irregular body temperature, slower pulse, and impaired consciousness (for more than 12 hours, paralysis of facial nerves, and seizures)

Cerebral compressions：The person will lose consciousness suddenly (for several minutes to one or two days) after being injured.

Preparation for emergency

13 Do you know how to treat burns?

It is necessary to do three treatments for burns: pain relief, preventing infections, and treating shock.

Minor burns

It is effective to cool down the burns using cold or iced-cold water in case of the burns cover less than 1/5 of the body surface area. It is also all right to soak in cold water, cool with a clean cold towel, and apply a Revenol cold compress. Using a 1000 times diluted solution of benzethonium chloride (invert soap) in the cooling water can prevent infection.

Serious burns

Cut off areas of clothing that are stuck to burn areas and see a doctor. It is better to protect the burned areas with sterilized pad.

Since a person who has extensive burns may fall into shock, try to keep him/her warm by covering with a blanket that is wrapped in a clean sheets or towels and rushed to the hospital.

A person who has burns covering more than 1/3 of body surface area is in extreme danger.

Because the person with serious burns needs a large amount of water, giving water to him/her can help alleviate shock.

When the person has conscious and has no damage to his/her internal organs, give drinks such as tea.

Never give alcoholic beverage to him/her.

If someone's clothes catch on fire

Get the person on the ground quickly and try to smother the fire by rolling around in something like a blanket.

If your own clothes catch fire, drop to the ground and smother up the fire while also yelling out to someone for help.

Do not run around in astonishment.

＜Things to remember＞

Do not use oil solutions on burn areas.

Use gauze and do not use objects that are made of fabric that will stick to the burned surfaces.

Do not remove things that have stuck to the burn surface.

Do not break blisters. It is important to have the person seen by a doctor when there are wounds involved.

Levels of burns

First degree burns: Skin redness and tingling pain

Second degree burns: Blisters start to appear

Third degree burns: Further, skin blackened and skin starts to deaden

Preparation for emergency

14 Do you know how to treat fractures, sprains and electrical shock?

Fractures
Stabilize the fractured bony part and the upper and lower parts of joint not to move the wounded area with something such as wooden splint (place a cloth between the person and the wooden splint) , then seek medical treatment from doctor. Do not try to move the bone back into place. If the person has external injuries, do first-aid on the wounded area first with paying attention not to move the fracture site. (There is a high chance of infection.) When you transport the person, be very careful not to move the fracture site. In the injury involves fractured rib, since the person will have a lot of pain when breathing deeply it would be a good idea to place him/her in a seated position on something such as Futon. If the person has a hole in his/her chest, cover it with clean gauze. In the injury involves spinal cord or pelvis, transport the person being careful not to move the fracture site. In the case of the collarbone, use one sling to suspend the forearm from his/her neck and stabilize the upper arm and chest with another sling.

Sprains and dislocations
Apply a cold compress and stabilize the wounded area with wooden splint and elastic bandage. If there is swelling, go to see a doctor (medical specialist in the surgery) as a general rule.

Electrical shock
Cut off the electrical current by turning off the power. If it is impossible to do so, the rescuer should try to keep the person away from the source of the electrical shock using a dry pole, clothes, or poor conductor gloves (it conducts slight electricity) so as not to receive an electrical shock as well. If the person is suffering from respiratory arrest or has shallow breathing, call an ambulance with providing rescue breathing. Any wounds should be treated the same way as for burns, which is to keep the person warm and inactive.

Preparation for emergency

15 Do you know how to do lifesaving first-aid treatment?

1 Everyone should receive effective training in lifesaving first-aid treatment.

If we encounter an accident suddenly right in front of us, how should we do?

If we do not provide appropriate first-aid treatment, the victim will lose the chance to survive.

For example, in the case of cardio-respiratory arrest, the more cardiopulmonary resuscitation is delay, the more lifesaving rate of the victim goes down.

2 Triage when there are many victims.

Triage means “To screen injured people”.

When there are many victims at the same time, it is impossible for a limited number of rescuers to treat all of them at once.

Therefore, it is important to “Save as many victims as possible, not all of them” in case of disaster.

When there are many victims, the first priority is to help victims who can be saved if first-aid is started within 30 minutes (such as asphyxiation and in shock).

3 Check victim’s consciousness.

Vital signs are the evidence of life.

If the victim’s vital sign is abnormal, it is essential to provide fist-aid treatment to him/her.

The most important vital signs are consciousness, breathing, and a pulse.

It’s very difficult for ordinary people to check whether the person is breathing or not, only medical experts can judge for a pulse.

Thus, if the victim has no conscious and his/her breathe cannot be confirmed within 10 seconds, you diagnose as cardiopulmonary arrest and need to provide cardiopulmonary resuscitation instantly.

4 Lifesaving first-aid treatment

When an accident occurs, lifesaving first-aid treatment proceeds in the following order: understand the situation at the accident site and to secure safety, check the vital signs of a person, to ask for help and call rescue (dial 119), provide cardiopulmonary resuscitation, and stop the bleeding in the case of massive bleeding.

Cardiopulmonary resuscitation is often provided by just one person.

Therefore, we must train ourselves to be able to provide cardiopulmonary resuscitation by ourselves.

How to provide cardiopulmonary resuscitation alone

（1） When you find collapsed person (injured person), talk to the person.

（2） If the person is not conscious, dial 119 to report and call for help.
Ask others to bring an AED. (If there is nobody, do it yourself.) to bring an AED.

（3） Perform chest compressions.

① The location of performing chest compression is above the breast bone, right between the nipples (the middle of the chest), which is only as a guide.
Place one hand on the part of the person.
Place your other hand on it.
Compress with your fingers away from chest wall of the person.
Position: Lock your elbows, straighten your forearm and upper arm, and compress with your weight on the one side.

② Compress speed: at least 100 times per minute.

③ Compress strength: press down to the chest with enough force to move the breastbone down at least 5 cm. Allow the chest to completely recoil after each compression.

④ After 30 chest compressions, provide two rescue breathings. (If it is difficult to provide a rescue breathing, it is allowed to keep performing chest compressions.)

⑤ Continue the cycles of 30 chest compressions and two rescue breathings until an AED or rescuers arrive.

（4） Rescue breathings are done as follows:

① Open the airway by lifting the person's chin upwards. (Fig.1)

② Give two rescue breathings. (Fig.2)

Lightly press the forehead with one hand and lift the end of the person's chin with the forefinger and middle finger of the other hand.

Fig. 1 Chin-lift method

Hold the person's nose with your thumb and forefinger of the hand placed on the forehead, often inhale deeply, and cover the patient's mouth with your own.

Then breathe twice into the person with checking if the patient's chest has expanded.

Fig. 2 Mouth-to mouth respiration method

Preparation for emergency

16　Do you know how to operate an AED?

An AED is used to provide defibrillation by an electric shock for a person in cardiac arrest who has still no heartbeat after cardiopulmonary resuscitation.

（Effectiveness）

It's crucial to provide defibrillation by an AED as early as possible.

It is said that the survival rate of a cardiac arrest person decrease by 7%～8% for one minute delay of defibrillation.

Quickness is critical for the person's prognosis.

（How to operate an AED）

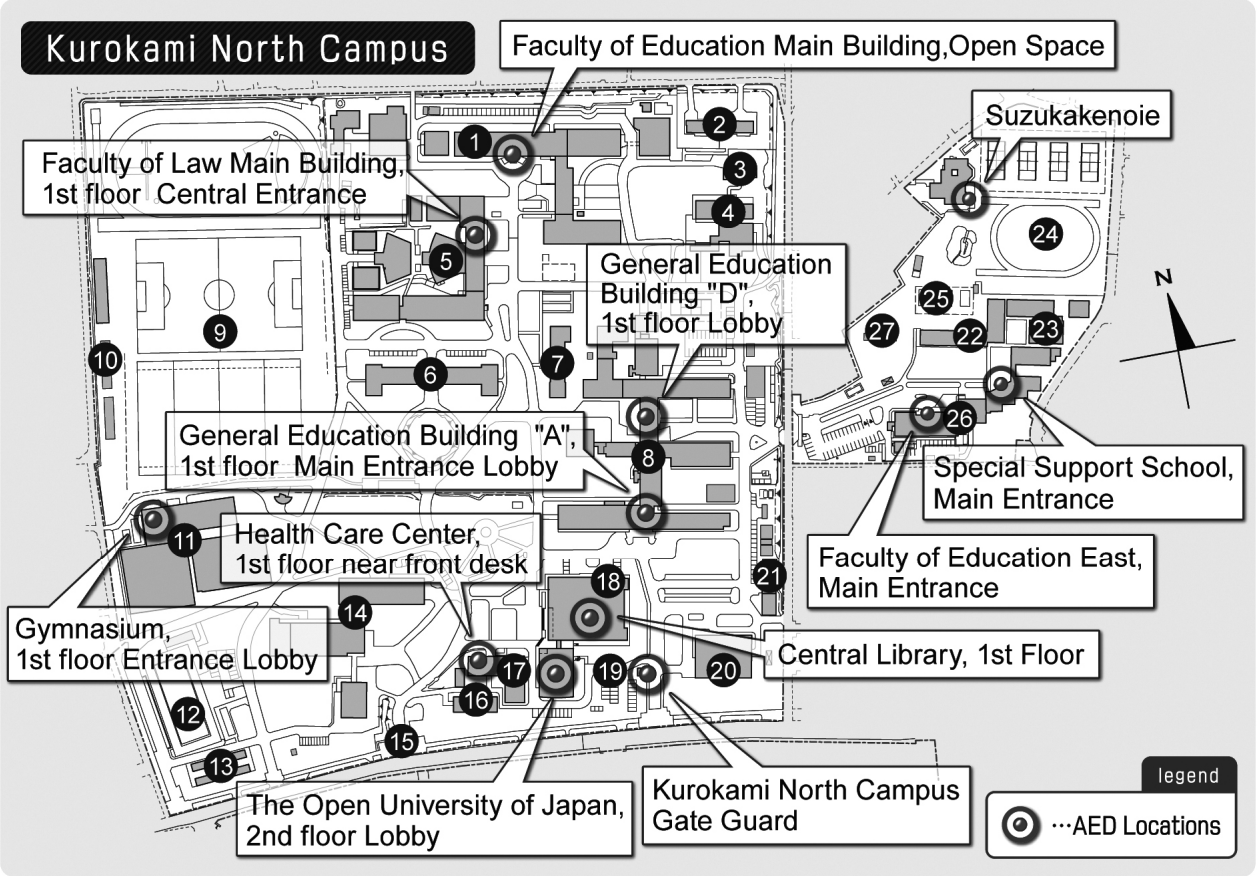
① Place an AED next to the person out of the way for the person who is performing chest compressions.

② Turn on the AED and follow the audio assist.
(Continue to provide cardiopulmonary resuscitation after an AED has arrived.)

1) Apply electrode pads on the person's chest and connect the cable.
2) The machine reads electrocardiogram.
3) If the AED orders defibrillation (electric shock), provide defibrillation with pressing the shock button with careful attention to electrification.
Or if the AED shows unnecessary of defibrillation, perform chest compressions right away.

③ Start providing cardiopulmonary resuscitation again leaving electrode pads on.
The AED reads electrocardiogram after 2 minutes again.
If the person is pulled back to consciousness or resumes breathe spontaneously, stop doing chest compressions and look out for him/her.

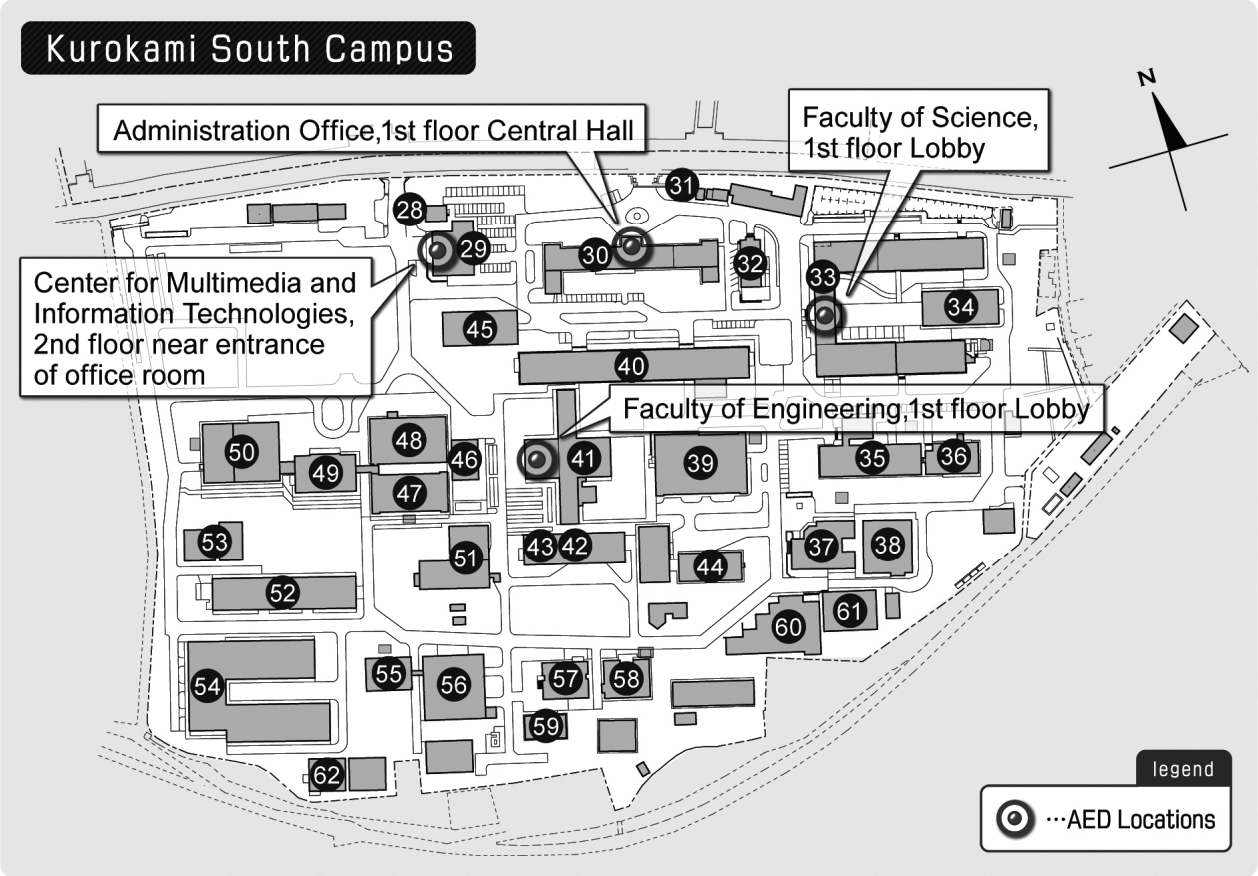
AED(Automated External Defibrillator)Locations in Kurokami Campus



1. Faculty of Education
2. Kurokami North Storage
3. Accommodation Facility for Guests (Chimeido)
4. Kusunoki Hall
5. Faculty of Letters, Faculty of Law, Graduate school of social and cultural Sciences, School of Law
6. The Memorial Museum of the Fifth High School
7. Chemical Laboratory of the Fifth High School
8. Research center for Higher Education, Center for Globalization, Student Division
9. Athletic Field (Bufugen)
10. Club Room
11. Gymnasium
12. Swimming Pool
13. Club Room
14. Student Hall
15. Red Gate
16. Academic Commons Kurokami-5
17. Health Care Center
18. Library
19. Gate Guard
20. Cafeteria, Shop
21. Environmental Safety Center
22. Special Support School
23. Gymnasium
24. Athletic Field
25. Swimming Pool
26. Faculty of Education
27. New Gymnasium

As of February in 2014

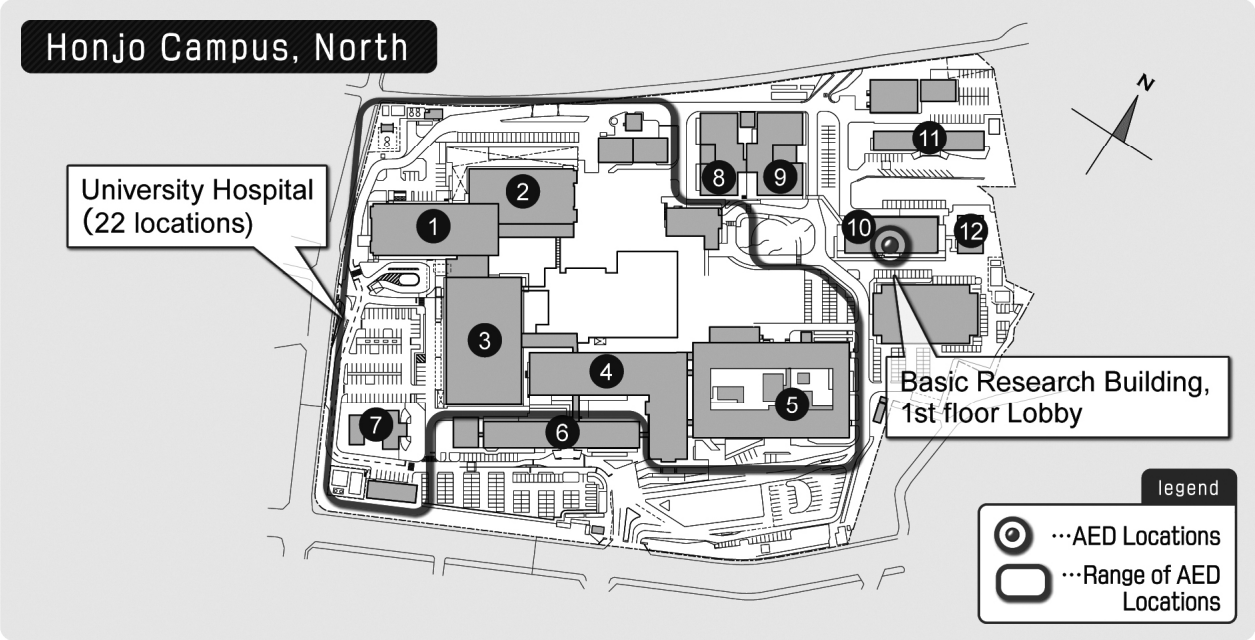
AED(Automated External Defibrillator)Locations in Kurokami Campus



28. Academic Commons Kurokami-4
29. Center for Multimedia and Information Technologies
30. Main Building of Administration Office
31. Gate Guard
32. Academic Commons Kurokami-7
33. Faculty of Science
34. Faculty of Science, Graduate School of Science and Technology
35. Faculty of Science
36. Faculty of Science
37. Graduate School of Science and Technology Research Building
38. Graduate School of Science and Technology Laboratory Building
39. Faculty of Engineering Research Building
40. Faculty of Engineering
41. Faculty of Engineering
42. Academic Commons Kurokami-3
43. Center for Marine Environment Studies
44. Academic Commons Kurokami-2
45. Museum of the Engineering Faculty
46. Faculty of Engineering Research Building
47. Faculty of Engineering Multidiscipline Laboratory Building
48. 100th Anniversary Memorial Hall
49. Academic Commons Kurokami-1
50. Faculty of Engineering Research Building
51. Faculty of Engineering
52. Mechanical Practical Room
53. Creative Engineering and Design Education Laboratory
54. Research Laboratory
55. Incubation Laboratory
56. Venture Business Laboratory, Shock Wave and Condensed Matter Research Center
57. Radioisotope Laboratory
58. Engineering Research Equipment Center
59. Archaeological Operation Center
60. FORICO (Cafeteria/ Shop and Bakery)
61. Cafeteria/ Hair Salon
62. Core Laboratory

As of February in 2014

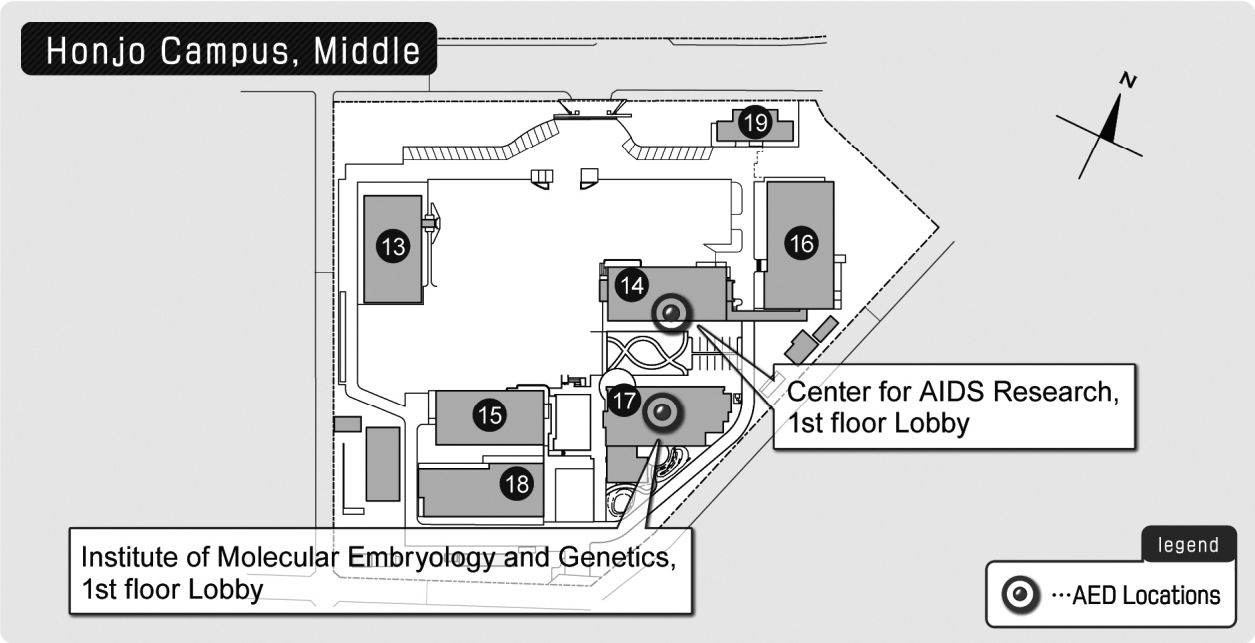
AED(Automated External Defibrillator)Locations in Honjo Campus



1. West Tower
2. East Tower
3. Central Examination Building
4. Outpatient Examination and Clinical Research Building
5. Administration Building
6. Clinical Research Building
7. Yamasaki Hall
8. Medical Education & Library Building
9. General Medical Research Building
10. Basic Research Building
11. Dormitory for Nurses
12. The Center for Medical Education and Research

As of February in 2014

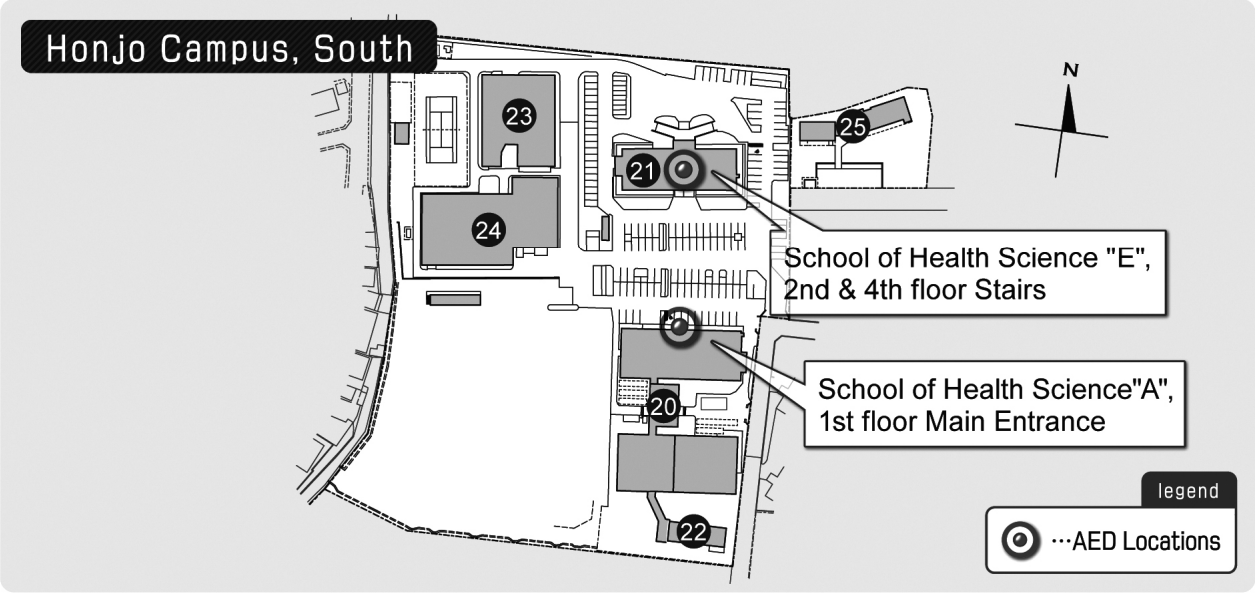
AED〔Automated External Defibrillator〕Locations in Honjo Campus



13. Lecture Building
14. Center for AIDS Research, Institute of Research Development and Analysis
15. Institute of Resource Development and Analysis (Gene Technology Center/ Radioisotope Center)
16. Institute of Resource Development and Analysis (Center for Animal Resources & Development)
17. Institute of Molecular Embryology and Genetics
18. Academic Common Honjo-1
19. Higo Iiku Monument Hall

As of February in 2014

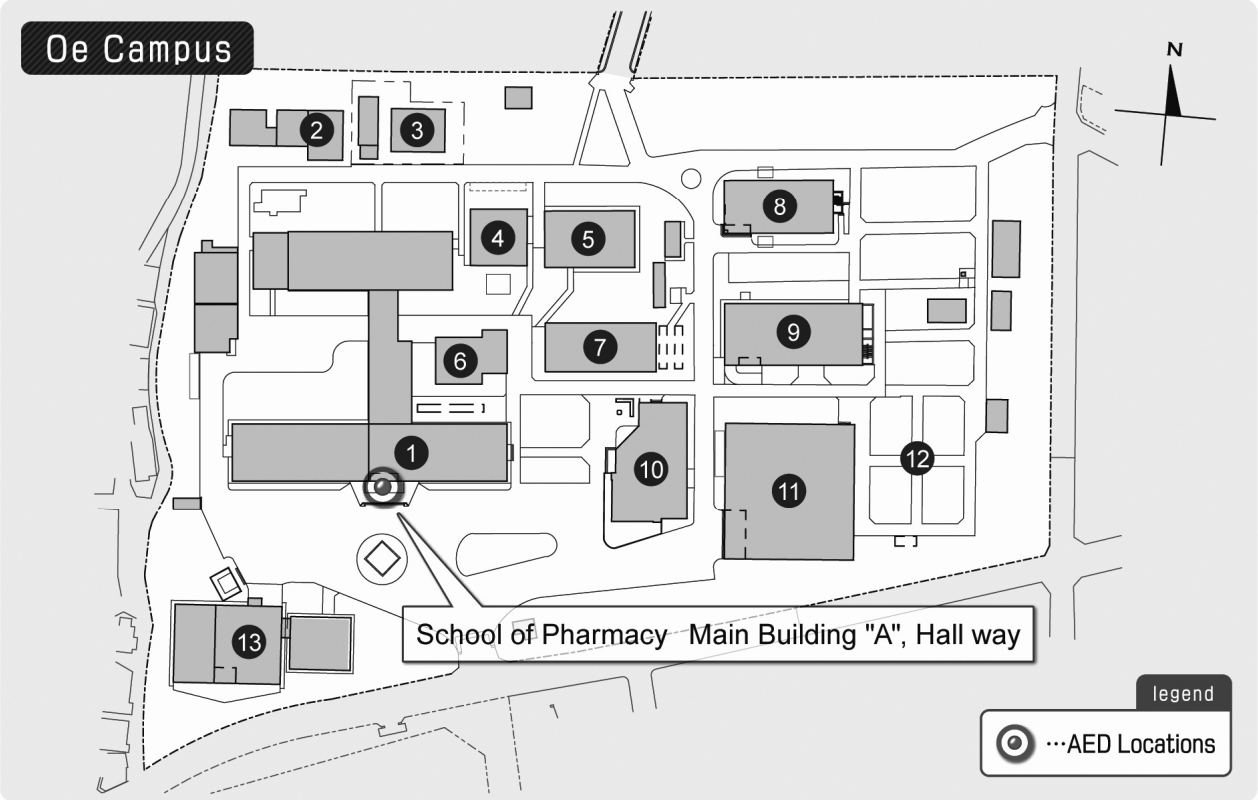
AED〔Automated External Defibrillator〕Locations in Honjo Campus



20. School of Health Sciences
21. School of Health Sciences
22. Academic Common Honjo-2
23. Student Union “Kaiju”
24. Gymnasium
25. Kobato Nursery

As of February in 2014

AED(Automated External Defibrillator)Locations in Oe Campus and other



1. Main Building A, B, C
2. Joint Research Building
3. Radioisotope Center
4. Main Building D
5. Main Building E
   (Library, Research Institute for Drug Discovery)
6. Center for Clinical Pharmaceutical Science
7. Lecture Building
8. Instrumental Analysis Center
9. General Research Building
10. Banjikan Hall
    (Restaurant, Seminar Room, Liaison Office)
11. Gymnasium
12. Center for Medical Resources and Ecology
    (Medical Plant Garden)
13. The Kumayaku Museum and Miyamoto Memorial Hall

〈Kyomachi Area〉	University Elementary School	・Infirmary, 1st Floor ・Instructor Room
	University Junior high school	・Infirmary, 1st Floor ・Near Office Room
〈Joto Area〉	University Kindergarten	・Administration Building, 1st Floor Infirmary
〈Toroku Area〉	Oe Athletics	・Gymnasium, 1st floor Entrance
〈Others〉	Dormitory for students (International Center)	・Common Building, 1st floor near Office Room

As of February in 2014

Preparation for emergency

17 Do you know how to treat heat stroke?

If a person does not feel well during long term work at a hot place, suspect heat stroke.

Move the person into a cool environment and lay him/her down on the ground with loosen his/her clothing.

Cool the person body by applying a cold wet towel or ice to limb and by sending wind with a paper fan and clothes.

Rehydrate the person with sports drinks. Get an additional treatment if he/she has symptoms as follows:

1.In the case of having cramp of limbs or abdominal muscle after heavy sweating and drinking water
Give one litter of 0.9% saline solution (add nine grams salt into one little of water). If no improvement after a while, be taken to see a doctor.

2. In the case of having fatigue, feeling of weakness, dizziness, nausea , headache, and ill complexion without increasing body temperature or even little increasing
Give sports drinks or one litter of 0.2% saline solution to restore physical strength. If no improvement after a while, be taken to see a doctor. If the person is unable to take fluids and tend to increase in body temperature, call an ambulance.

3. The survival rate goes down if the person has the following symptoms: cannot stand up, unsteady on one's feet, feeling groggy, act weird, and increase in body temperature.
Call an ambulance right away and then cool the person's body by applying water or ice until an ambulance arrives. Applying Ice or iced pack to head, cervix, armpit, and groins are effective to cool down. Do not give fluids to the person who is unable to swallow since choking can occurs.

Preparation for emergency

18　Do you know how to treat if you get stung by a bee?

There are 3 types of bees in Japan: honey bees, paper wasps, and hornets.
You'd better to know by which types of bees you got stung.

Move away several ten of meters from the place where you get stung since there may be nests of bees around there.
Pinch hard the area of a sting and take or suck venom out.
Spit up the venom and never swallow it.
And rinse off and cool the wounded area with running water.

In the case of stung by honey bees, a systemic reaction may not occur.
However, if you have symptoms of fever and vomiting in the case of stung by paper wasps, see a doctor.
In the case of stung by hornets, see a doctor immediately if you have symptoms of fever and vomiting, and breathing difficulty.
In the case of stung by hornets, there is a possibility of life-threatening anaphylactic shock (decrease in breath, beat, and blood pressure).
Look out for anaphylactic shock for 30 minutes after got stung.
(Do not be alone and prepare to call an ambulance just in case.)

Preparation for emergency

19 Do you know how to treat if you are bitten by a snake?

1. Call an ambulance immediately, keep the bitten part below the heart level, and keep at rest. There is a possibility of being in shock promptly.

2. Rinse off the wounded area with clean water.

3. Fasten lightly the part of five to six cm away from the heart with a towel. Although this is one theory that it is effective to prevent the diffusion of venom, it may not be sometime.

4. Do not suck the venom out from the wound since it may cause secondary damage.

Preparation for emergency

20 Do you know how to treat for acute alcoholic intoxication?

1. If a person get falling-dawn drunk, place the person on his/her side because there is a risk of choking on his/her vomit or blocking the airway by his/her tongue.
   And turn the person to opposite side every 30 minutes.

2. If there is a person who gets falling-dawn drunk, pay attention to keep him/her warm to prevent the loss of body temperature by covering with a blanket.

3. Keep your eyes on the person, check color of his/her face and breaths. If you find something wrong with him/her, do appropriate treatment such as call an ambulance.
   If the person does not awake even if you give him/her a pinch, and has an abnormality of breath (shallow and rapid breath, or too slow breath), you should judge that he/she is unconscious and call an ambulance without hesitation.
   The person has a high risk of death, and might need cardiopulmonary resuscitation.

Safety

1 Do you know what safety means to have a feeling of a proverb, not “Fire on the other side of the river”, but Rock on another mountain”?

A proverb “Fire on the other side of the river” means “A somebody else's problem is no concern of yours”.

A proverb “Rock on another mountain” means “Learn from others' mistakes, and put other’s languages and behaviors to use for you”.

In fact, to have a feeling of a proverb “Rock on another mountain” means to try to develop your knowledge and the skill of assurance for your safety when learning disasters and accidents on TV and newspapers.
Do not take the information like somebody else’s problems, similar to a proverb “Fire on the other side of the river”

You can search online for information about disasters and accidents.
- ○ Mainichi jp（http://mainichi.jp/）

Sites for accident information
- ○ Data bank system for accident information （http://www.jikojoho.go.jp/ai_national/）
- ○ Advanced information center of safety and health（http://www.jaish.gr.jp/）
- ○ National institute of technology and evaluation （http://www.nite.go.jp/）

Company gathering accident information related to universities
- ○ the Japan association of national university（http://www.janu-s.co.jp/）

Company gathering accident information related to chemicals (Newsletter service)
- ○ Advanced chemicals master data system for educational and scientific institutions （http://www.kyokanet.jp/）

To have a feeling of a proverb “Rock on another mountain” means to try to develop your knowledge and the skill of assurance for your safety in reference to the cause of other’s disasters and accidents.

Safety

2 Can you explain the difference between human－caused disasters and natural disasters?

According to the Kojien dictionary, “Disaster” means “Damage of human life and social life caused by abnormal natural phenomenon or human-caused (activity)”.

In fact, “Natural disaster” means “Damage of human life and social life caused by abnormal natural phenomenon”.
And “Human-caused disaster” means “Damage of human life and social life caused by human-caused (activity)”.

“Abnormal natural phenomenon” and “Human-caused (activity)” are not included in disasters.
These became disasters when people get damage of human life and social life by these.

We cannot control abnormal natural phenomenon by modern science, but human-caused (activity) can.

“Natural disaster” means “Damage of human life and social life that are caused by abnormal natural phenomenon”.
“Human-caused disaster” means “Damage of human life and social life that are caused by human-caused (activity)”.

Safety

3 Do you know major natural disasters and the location of active faults in Kumamoto Prefecture?

Kumamoto Prefecture is vulnerable to damage by storms and floods relaively.

There are two reasons.

（1）Warm moist airs from the East China Sea hit the mountain range that runs through Kyushu, and bring heavy rain localized by updraft there; the water flow into Shirakawa River, Midorikawa River, and Kuma River which runs through Kumamoto Prefecture and cause floods.

（2）Kumamoto prefecture is susceptible to suffer damage from heavy storm and heavy rain due to a passage of typhoons.

In addition, it is susceptible to suffer damage from storm surge in the coast area.

In 1953, torrential rains by rainy front hit Kumamoto City and caused a flood of Shirakawa River that burst their bank.

And Kumamoto City was damaged by overflowed from Shirakawa River in 1980 and in 1990 as well.

Recently, in 2007, Kumamoto City was hit by torrential rains which caused 7 houses flooded above floor level.

In 2012, a torrential rain we've never experienced so far in the northern region of Kyushu caused floods and sediment disasters in various places in Kumamoto Prefecture which inflict the damage with 25 people dead or missing, 3406 house damage (169 houses destroyed, 1293 hoses partially destroyed, and 544 houses inundation above floor level).

There are 108 active volcanoes in Japan; in the east part of Kumamoto Prefecture, there is Mt. Aso, one of "13 active volcanoes which we should observe and research intensively", exploded and caused natural disasters in 1932, 1958 and 1979.

It is said that Kumamoto Prefecture has comparatively few earthquakes.

But, there are three faults in the middle part of Kumamoto Prefecture: Tatsuta Mountain fault, Futagawa fault, and Hinagu fault. The Headquarter of Promotion of Earthquake Research (under control of Ministry of Education) in 2002 reported that the possibility of earthquake centered in these fault zones is not zero percent during the next 30 years.

In addition, if an earthquake by these faults occurs, the vibration of earthquake intensity 6 is expected.

Kumamoto Prefecture might sustain damage from the vibration of a giant earthquake that happens in the Nankai Trough if the focal area is from the coast of Sikoku to Kii Peninsula. (The Headquarters of Promotion of Earthquake Research)

Kumamoto Prefecture is vulnerable to damage by storms and floods relatively.
There are three faults in the middle part of Kumamoto Prefecture: Tatsuta Mountain fault, Futagawa fault, and Hinagu fault.
If an earthquake by these faults occurs, the vibration of earthquake intensity 6 is expected.

Safety

4 Can you explain about safety?

The opposite word of “Safety” is “Dangerous”.

It means “Safety” can be expressed “No dangerous”.

But I wonder if this expression is right?

According to the Kojien dictionary (Sixth edition), the meaning of “Safety” and “Dangerous” described as follows:

Safety: No dangerous. Peace and quiet. There are no possibilities of damage and harms.

Dangerous: There are possibilities of damage and harms.

Like this, the expression “Possibilities of damage and harms” are used for both meanings.

Then, check the word “Possibilities of damage and harms” in the Kojien dictionary (Sixth edition), there is an expression “Risk”.

In fact, the meaning of “Safety” and “Dangerous” can be explained by using an expression “Risk” as follows:

Safety: There are no risks.

Dangerous: There are risks.

According to the Kojien dictionary, the word “Security”, almost the same meaning as “Safety”, means a condition with no worry and calm. It expresses human mind.

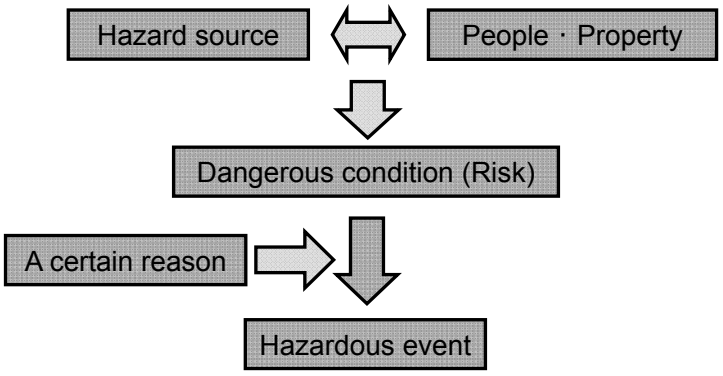
Safety is a condition, which is made by human. In fact, safety is ensured by human.

Safety means there are no risks (Possibilities of damage and harms)

Safety

5 Can you explain about generating mechanism of damage (or harms)?

When damage (or harms) (hereinafter referred to as “Hazardous event”) occur, it is necessary to contact with “Hazard source” definitely.
The generating mechanism of hazardous event represents as follows:



If people and property make contact with hazard source, it leads to “be a dangerous condition (at risk)”. Furthermore, additional certain reason to the condition causes a hazardous event.

That means avoiding hazardous events is keeping away from hazard sources.
But it is impossible realistically.
Because most of hazard sources give us benefits to people and property.

And hazardous events rarely occur with only contacting hazard sources.
Some certain causes such as emergency situations, blackout, and men-caused mistakes are often needed for hazardous events.

When people and property make contact with “Hazard sources” (that means a dangerous condition) and add additional certain reason to the condition, it causes “Damage (or harms)”

Safety

6 Can you explain the differences in attitudes toward "Safety" in Japan and other country?

There is a book titled "Japanese and Jewish" written by Isaiah Ben-Dasan.
There is a sentence that "Japanese believe that safety and water are free of charge" in this book.
This sentence can be interpreted as the high level of safety and culture in Japan.
In fact, Japanese have a poor knowledge of "Hazard sources" and "Risk".

"Risk" can be explained as follows:

Risk = a possibility of damage (Harms) X a degree of damage (Harms)

We explained that "Safety" is "There are no risks" in session 4.
To make "There are no risks" need to do zero possibility of damage (Harm) or zero degree of damage (harm).
However, it is considered that it is impossible to make it zero in both realistically.
It suggests that you should keep away from hazard sources which give us benefits in order to make it zero.

That means, "Safety" is non-existence in real life.
Zero risk is called "Totally safe" for thinking about "Risk".
People in Japan think that "Totally safe" is "Safety".

On the other hand, people in other countries think that it is impossible to make risk zero because they have the concept of risk.
Therefore, they think that "Safety" is "A condition with reducing risks close to zero illimitably".

In fact, "Safety" is "A condition with reducing risks close to zero illimitably" from a theoretical perspective, it is possible to ensure safety in real life.

Japanese think that "Totally safe" which is zero risk is safety.
On the other hand, people in other countries think that safety is a condition with reducing risks close to zero illimitably.

Safety

7 Can you explain the technique to ensure safety?

The ultimate technique to ensure safety is “Removing hazardous resources”.
However, it is not realistic as long as we receive benefits from hazardous resources.

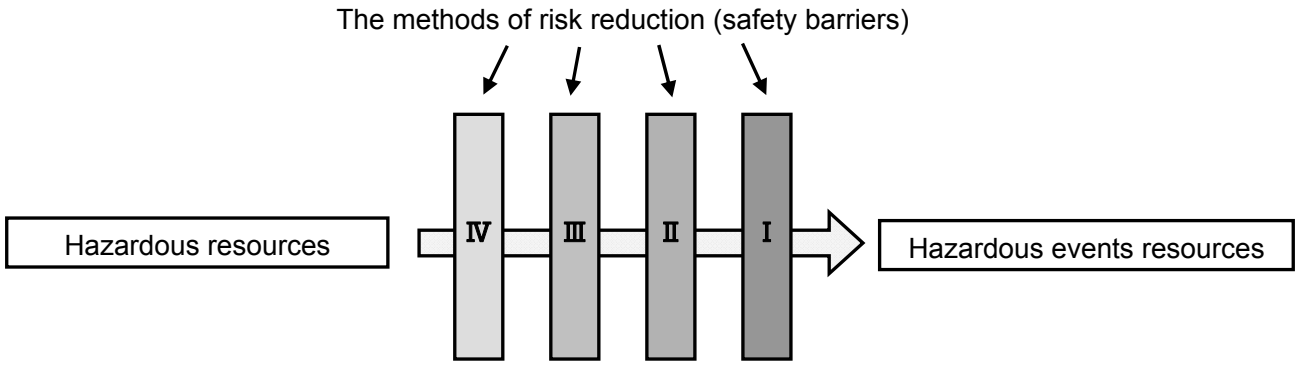
The technique to ensure safety is “Reducing risks close to zero illimitably”.
However, we have to consider the technique is expensive.

Specifically, there are three techniques: (1) specify hazardous resources, (2) suppose potential hazardous events, and (3) Carry out the methods for risk reduction.

There are two main types of methods for risk reduction.
One is “To reduce the probability of hazardous events” and the other is “To reduce a degree of hazardous events”.
The Methods are as follows:

To reduce the probability of hazardous events	To reduce a degree of hazardous events
1.Segregate workers from hazardous resources 2. Improve working process/work methods	1. Replace by things low risks and harms 2. Impound hazardous resources 3. Use a proper protective equipment for working

In addition, there is an idea of setting up “Four protection barriers”.



Ⅰ Physical barriers (Safey naturally)
Ⅱ Functional barriers (An action is sometime needed)
Ⅲ Additional barriers (protective equipment)
Ⅳ Soft barriers (Signs, educations, manuals)

Physical barrier, is called safety barriers, should to be set up for the people near to the hazardous events in order to ensure safety without any conscious.But this barrier is very expensive, and it would not be adapted to all of hazardous resources/ hazardous events.For example, in the case of handling gunpowder, we need such a technique that the gunpowder is handled in explosion-proof equipment with robot from outside in order to avoid the explosion.We can imagine it is very expensive, and firework craftsman lose business.

Taken together, there are many techniques to ensure safety.Since techniques are expensive, we need to decide priorities and sizes. For that reason, there is a technique, is called “Risk assessment”, which evaluates risks. This is a technique to provide an indication by giving risk a grade. But spare someone the details of it.

Safety is not made by naturally, but by people. Recently dangerous situations are decreasing due to the high level of safety and culture. These cause “Decreased sensitivity to danger”. Therefore, we cannot specify hazardous resources or hazardous resources are lurking. We hope to develop an awareness of safety which is able to suppose hazardous events and carry out measures by identification of hazardous resources.

In addition, it is important that safety is not experimental safety (may be), but proven safety (most likely).

Moreover, safety cannot be ensured by only your effort. When working with other person or sharing rooms with other person, all people in the same area need to have awareness of safety in order to ensure one’s safety.

The technique to ensure safety is to specify hazardous resources, suppose hazardous events caused by the hazardous resource, and carry out the methods for risk reduction.

Safety

8 Do you know how to prevent fire disasters?

Flame, the cause of fires, is an oxidation reaction (combustion) by light and heat generation. Combustion needs three essential elements: a source (heat energy), combustible materials, and oxygen (or air).

It means that it is necessary to have no flame or control flame in order to prevent fire disasters. It is better for controlling heat sources or flammable materials in order to control flame. An example of heat source and flammable materials (hazard source) are as follows:

heat source	flammable materials
・Flame of match and lighter ・Firework ・Flame of gas heater and stove burner. ・Cigarette ・Electrical outlet and electric cord and so on.	・Papers ・Clothes ・Combustible material, flammable substance and so on.

It is necessary to adjust the level of flame and the amount of heat in order to control heat source.

And it is necessary to keep flammable materials away from heat source in order to control them. Or replace flammable materials by incombustible materials. Do not use old rubber tube gas for gas heater and stove burner to avoid gas leak.

When using flammable substances (gas and organic solvents), it is necessary to keep them away from heat source sufficiently. Understand that solid or liquid flammable substances produce flammable gas, and the flammable substances start burning when the flammable gas contact heat source. Remember that electrical spark of machines and electricity can also create fires. Place the sign “Keep fire away” in places where combustible materials/flammable substances are handled.

In order to prevent fire disasters, it is necessary to check heat source and flammable materials, control heat source, and keep the flammable materials away from heat source.

Safety

9 Do you know how to prevent electrical accidents?

Usually electrical outlet devices and electric cords do not become heat source, but they produce heat in the case of overcorrect. Overcurrent occurs in this condition below.

An example of occurring overcurrent
・Loose-insertion of a plug into a socket ・Usage of a thin extension cord for an electrical product carrying high current ・Accumulation of dust on the base of a plug ・A deformed electric cord by placing big materials such as furniture on it ・Usage a cord which is bunching or rolling up

It is important to check whether electrical cord and extension cord are deformed. Change a cord bent and curved or likely to be disconnected to a new cord immediately. Check a plug inserted for a long time (such as refrigerator, air conditioner, and TV) if dust has not accumulated on it. Recently we often use office automation tap due to the spread of electrical appliance such as personal computer. Check the ampacity of office automation tap, installation locations (where is not dusty), and the condition of cords. Do not staple cords to the wall.

Normally when overcurrent occurs, all power will be disconnected by an earth leakage breaker. When the earth leakage breaker is thrown again soon after resetting it, overcurrent might be occurring somewhere. In that case, consult a specialist. If you live in an apartment, consult a manager.

Prevent the occurrence of over current in order to prevent electrical accidents.

Safety

10 Do you know how to prevent electric shock?

It is said that the three major causes of electrical accidents are electric shock, electric leakage, and overheating. The problem of electric shock is the amount of electrical current that runs though a human body more than the voltage itself. Although the effect that an electric current that runs through a person's body has on the person varies greatly depending on the conduit site and the amount of time that one is electrified, rough estimates are provided in the chart below.

1mA	Just barely feel it
5mA	A considerable amount of pain
10mA	Intolerable pain
20mA	Muscular rigidity and difficulty in breathing occurs
Over 20mA	The Life is in danger

In addition, it is said that if the amount of mA multiplied by the number of seconds of exposure exceeds more than 30, the person will sustain a fatal injury. There is also the danger that an alternating electric current for household use of 100V can kill you in some case.

Touching a bare electric cord (live-wire) or electric leakage of non-grounded appliances causes electric shock. Therefore, it is necessary to prevent electric leakage and insulate electric in order to avoid electric shock.

Electric leakage is most often caused when electrical equipment has become old and the equipment has insulation that has become defective, moisture has stuck to parts inside the equipment, or dust has accumulated on high voltage parts. As well as being one cause of major disasters because they are directly linked with fires, electrical leakage can also often cause electrical shock.

It is necessary to make a ground connection correctly in order to prevent electric leakage.
Make sure to ground especially electric appliances (such as laundry machines) which are used near water. In case of the 2P plugs (Known as 3P plugs) with attached grounding electrode, do not use 3P-2P conversion apparatus or extension cable for 2P plug equipment without careful consideration.

How to make a ground connection correctly
①Never let a ground connection touch a gas pipe. (In the case that there is a gas leakage, there is the danger of immediate explosion.) ②Do not make a ground connection with a water pipe. (Non-conductive pipes that are connected halfway happen frequently and there are cases where the grounding wire ends up not being useful.) ③Do not make a ground connection with conduits or window frames. (Regulations do not require grounding wires for conduits and there are some window frames that are non-conductive, so in either case grounding wire is often not useful.) ④Protective grounding wires and grounding wires used for lightning rods should always be separated by a distance of more than two meters. (This is because there is a danger that equipment connected to the grounding wires will be damaged in the case when lightning is discharged.) ⑤When you touch directly to a live part and a current-carrying part, use guards such as rubber gloves and rubber boots. ⑥Earth leakage breakers should be installed for electric equipment and drills as well as their power sources which are used in damp or humid places.

Normally when electric leakage occurs, all power will be disconnected by an earth leakage breaker.

When the earth leakage breaker is thrown again soon after resetting it, leakage might be occurring somewhere.

In that case, consult a specialist.

If you live in an apartment, consult a manager.

In order to prevent electric shock, ensure to ground electrical equipment for prevention of electrical leakage, do not touch a bare electric cords, or insulate electric.

Safety

11 Do you know the five rules for bicycle safety?

Bicycles are one of the light vehicles under the road traffic act.

Therefore, we must observe the road traffic act when riding a bicycle.

The five rules for bicycle safety (By Metropolitan Police Department transportation authority headquarters, June 10, 2007)
1 As a general rule, ride a bicycle on the street. Riding on the sidewalk is an exception. 2 Ride on the left side of the street. 3 On the sidewalk, pedestrians have priority. Ride along the street side of the sidewalk. 4 Observe the traffic rules. ○ Do not ride after drinking alcohol. Only one rider per bicycle. Do not ride in parallel. ○ Use a light at night. ○ Observe traffic signals, stop at traffic signals, and confirm safety at an intersection. 5 Children must wear a helmet.

In addition, riding a bicycle without breaks (Piste) and one-handed driving (such as using a mobile phone and an umbrella) are prohibited.

Also, driving with using earphones and a headset are prohibited in many prefectures.

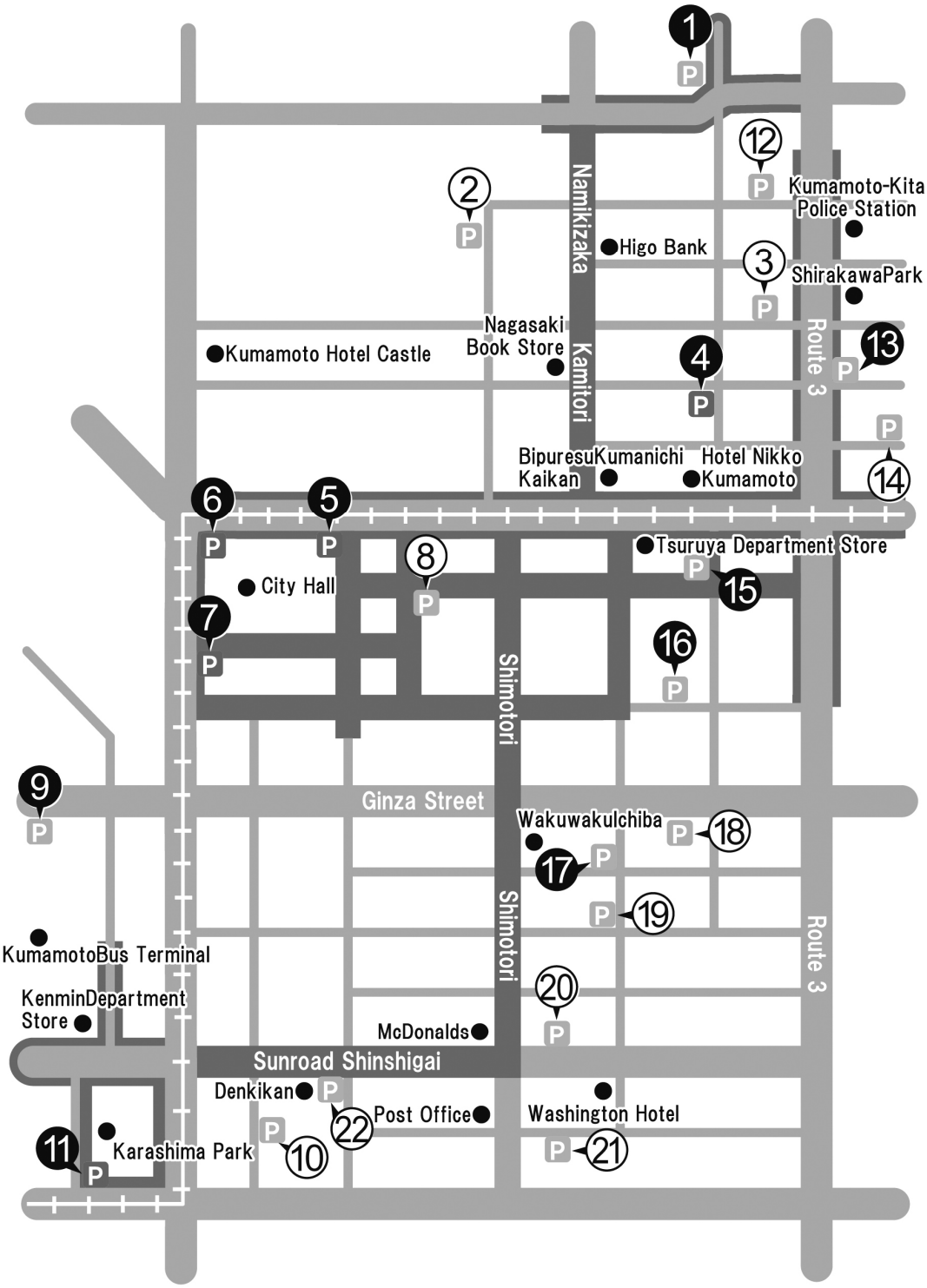
In the case of bad accidents, the fine will be issued since there is not a citation system (no criminal record) such as vehicle.

As a general rule, people riding a bicycle have a responsibility in the case of accidents on the sidewalk.

An example of accidents by a bicycle
● High school student on the way to school by bicycle hit a pedestrian by mistake, and inflicted spinal cord damage on him/her. Compensation : 60 million and 80 thousand yen. ● When a high school girl was riding bicycle without turning on lights while operating a mobile phone, she hit a female nurse. The nurse remains disabled. Compensation : 50 million yen. ● A high school student on the way back to home by bicycle was preoccupied with a train, and hit a pedestrian. The pedestrian died. Compensation : 39 million and 12 thousand yen.

Kumamoto City placed no-parking zone for bicycle.

When you go to the center of Kumamoto, park your bicycle at a private or municipal bicycle-parking area.



No-parking Zone for Bicycle

● Existing Bicycle-parking Area

○ New Private Bicycle-parking Area
(Scheduled to open on May 21)

❶ Fujisakigumae station parking, Kumamoto Dentetsu Railway (Bicycle: 200 Scooter: 88)

② Kumamotomachinaka, Jotomachi parking (Bicycle: 281)

③ Kumamotomachinaka, Kusabamachi parking 2 (Bicycle: 184)

❹ Kamitori parking (Bicycle: 650)

❺ City Hall parking, Underground (Bicycle: 550)

❻ City Hall parking, North side (Bicycle: 200)

❼ City parking (Bicycle: 365 Scooter: 405)

⑧ Kumamotomachinaka, Shimotori 1-chome parking (Bicycle: 407)

❾ Bus Terminal parking, Behind (Bicycle: 80)

⑩ Kumamotomachinaka, Shinshigai parking 2 (Bicycle: 219)

⓫ Karashimacho park parking, Underground (Bicycle: 470 Scooter: 316 Motorcycle: 50)

⑫ Kumamotomachinaka, Kusabamachi parking 1 (Bicycle: 159 Scooter: 167)

⓭ Passurt 24 Suidocho parking (Motorcycle: 15)

⑭ Kumamotomachinaka, Park 3 parking (Bicycle: 233)

⓯ Tsuruya Department Store parking (Bicycle: 270 Scooter: 100)

⓰ Ansei Machi parking (Bicycle: 90)

⓱ Shimotori 1-chome parking (Motorcycle: 10)

⑱ Kumamotomachinaka, Ginza Press parking (Bicycle: 182)

⑲ Kumamotomachinaka, Ginza Street parking (Bicycle: 368 Scooter: 81)

⑳ Kumamotomachinaka, Shimotori 2-chome parking (Bicycle: 354)

㉑ Kumamotomachinaka, Shower street parking (Scooter: 128)

㉒ Kumamotomachinaka, Shinshigai parking 1 (Bicycle: 482)

Remember the five rules for bicycle safety.
In addition, riding a bicycle without breaks, one-handed driving, and driving with using earphones and a headset are prohibited.

Safety

12 Do you know things to be careful when using machines?

Machines are used for the purpose of the fixed exercises/works by using power such as electric, and are widely used to improve the efficiency of productivity.

Therefore, there are many work accidents by machines, and machine accidents account for 30% of work accident figures (About 30,000 accidents per year.)

Machine accidents are a disaster which is high possibility to get a serious injury, such as get caught or stuck in machinery.

It is important to know the structure and character of machines, handle not to make accidents, and establish a system.

Reminders before handling machines

1 Master the structure and character of a machine before using it.
2 For those who do not have own a work uniform, they should wear clothes that will not get caught in the machinery.
In addition, wear shoes for safety reasons, not sandals.
It is strongly recommended to wear safety shoes.
3 When doing cutting work, do not wear any type of gloves because they may get caught it the equipment.
In the case when you are working with machinery where pieces of debris might fly around, you should consider wearing protective goggles.
4 Do not touch the switches of equipment other than the one you are using for no reason.
5 Fasten securely the woodworking materials you are using and be careful to not get caught in them.
Watch out for pieces of flying debris after beginning work.
Watch out for others so as not to bother.
6 Before using a piece of equipment, get the permission of the staff member in charge of it, and carry out an inspection of it.
The working person also checks the start and stop system before using it in advance.
Take advice during working.
7 After finishing your work, clean up the machine and area surrounding it, and then return the machine to its original place and condition.
8 Put back industrial tools and pieces of measuring equipment that you have used so that the person after you can use them quickly and easily.
9 Inform the staff member in charge of the equipment used that you have finished and have that person do an inspection of it.
10 If you do not feel well or get injured, you should tell a staff member immediately.
11 Prepare yourself for unanticipated situation such as accidents.
(It is better to have more than one person in the room at the time so that someone will notice of the person working get an injury.)

Once you start using a machine, it is hard to stop it soon.
Therefore, master the structure and character of the machine, and wear a proper work uniform and a protector.

Safety

13 Do you know things to be careful when handling gas?

Gas is commonly used in our life, such as city gas, propane gas, gas cartridge for domestic use, and hair sprays.

There are a variety of gas types and it is necessary to handle each gas properly.

For example, city gas is comprised mainly of methane gas and easy to accumulate in the ceiling. On the other hand, propane gas is easy to accumulate on the floor because it is heavier than air.

Reminders when handling gas

1 Do not use old gas pipes, kitchen ranges, and stoves.
Especially gas pipes with cracks may cause gas leaks, so they must be replaced immediately.
(Never use temporarily mended gas pipes.)

2 The turning on and off of gas must be checked with one's own eyes.
Ensure that all gas stoppers are closed after using gas.

3 Use a clamp at the connection part of a gas tube.
And also cover a gas stopper with a rubber cap when It is not in use.

4 Inspect regularly If there are any abnormalities with the connecting part of gas pipes, cook stoves, and stoves.

5 For gas pipes, use strengthened gas hoses and power outlet hoses that will not collapse even if stepped on.

6 Never place easily combustible things near or on top of gas appliances.

7 Do not place a cook stove or a gas burner on top of a combustible table such as one made of wood.
Make sure to place them on an incombustible table such as one made of metal or an inorganic substance.

8 When disposing of cartridge type gas cans for cook stove and spray can (such as cosmetics, insecticides) after their use, make sure to put holes in the cans and release all remaining gas in the cans.
If cans are disposed with remaining gas, there is the possibility of explosion due to heat expansion.

9 Install a gas leak alarm.
Since city gas is light, it should be placed about 30cm from the ceiling in a room where there is gas equipment.
Keep a close watch on the expiration date of installed gas leak alarms.

10 Do not use hair sprays, insecticides which have LP gas in them, near flame. (including cigarettes)

11 Be careful about imperfect combustion in order to prevent carbon monoxide poisoning.
At the same time, make sure that rooms are well ventilated.

12 Since gas is invisible to human eyes, it is very dangerous if it leaks into the air.
For that reason, city gas and LP gas were added odor.
Handle gas with care while doing experiments and in our life.

Since gas explosion caused by a spray can happens frequently, be careful to handle it.

Safety

14 Do you know things to be careful when handling harps?

We use a knife, scissors and a cutter when cutting something in our daily life. We use something such as a saw or nails for woodwork. These tools can be handled easily due to less power than electrical tool's. But you can get an injury involved human lives with using improperly.

In addition, glass as a transparent solid is used for window glass, glass, and beakers in the university. Glass will be the same thing as sharps when it has broken. Glass needs to be handled so as not to break carefully for that reason.

Choose a right place to put glassware when handling it. If putting glassware at the end of the table, there is a risk to fall it down. However, putting it at the back side of the table can reduce the risk of falling.

There are many cut-accidents by glassware and needle-stick accidents in the university as well. Medical service workers such as University Hospital and experimenters who use syringe have to be careful to handle them.

Glass becomes sharps when it has broken.
There are many sharps-related accidents unexpectedly.

Safety

15 Do you know things to be careful when working in high place?

Crash and fall accident are death accident next to traffic accident.

It creates a chance of an accident to slip, make a false step, back action of yours, and shake of the place.

The degree of damage depends on how to fall, for example, the hardness of ground, the area of body which gone into the ground, and wearing a protective equipment or not.

We must set up a working platform when doing work at above 2 meters in height according to the Industrial Safety and Health Law.

If it is impossible to do that, must use a safety rope and wear a safety band.

There are many death accidents by falling even temporally work in high place using a stepladder and a chair.

Reminder when working in high place

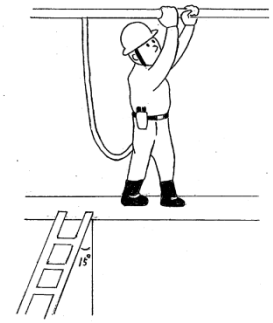
1 Set up a working platform or wear a safety band when doing work at above 2 meters in height. Consult a specialist when there is the type of a work.

2 Watch out your steps and provide measures, such as setting up a walking board when working on the roof.

3 Make an arrangement for floor materials and foot wears to prevent slipping.

4 Use ladders that are sturdy and are of an appropriate length and be set up at 15 degree angles to walls.

5 When setting up ladders, put them in places where there are firm footholds and no in places where there are swinging doors or the chance of people walking by.
Ladders should be set up at 15 degree angles to walls.



6 Do not use ladders when they are in a slick condition, such as when they are wet or have oil stuck to them.

7 Always go up and down ladders one person at a time and do not have anything in your hands when doing so.

8 Always have someone there watching you.

9 Avoid doing work in an uncomfortable position.

10 Always wear a helmet and make sure the chin-strap is securely fastened.

We must set up a working platform or wear a safety band when doing work at above 2 meters in height.

Safety

16 Do you know things to be careful when doing transport work?

When moving things, transport, carriage, and storage, we need to do transporting (cargo work) and loading works. These works are performed by human work and human power.

Therefore, there are many accidents related to these works because of improper transportation, non-conformance the basic action rules for lift and carry, and the lack of job training for the transport work.

Reminder when doing transport work
1 Before doing any types of works mentioned above, it is important to: ①secure a good working space and make sure it is clean and organized, and ②confirm the working space in advance and inspect all materials needed for the work.
2 Working at the proper posture (kneeling down with knees bent)
3 When doing joint work, have a meeting beforehand to discuss what will be done and breathe in the same rhythm while doing the work.
4 Handle only the proper amount of weight based on your own physical capability. The weight that should be handled by men ages 18 and over is generally set at 55 kg or less.
5 Make sure that the load is within the functional range of the lifting equipment.
6 Check the method of lifting and hoisting attachment carefully in advance.
7 Act on the instruction of the person in charge and become thorough signals when doing the work.
8 Stay away from the working place where is doing lift, lowered or moving around.

It is important to prevent health problem such as backache with proper work methods for transport works.

Safety

17 Can you explain about the risk and harm of cryogen?

Cryogen is liquid which is compressed nitrogen gas and helium.
Boiling point of liquid nitrogen is -196℃ and boiling point of liquid helium is -253℃.
For that reason, be aware of frostbite.
In addition, it is necessary to be careful for anoxia by a decrease in oxygen levels in the room as liquid nitrogen vaporizes rapidly.

Bad working conditions result in anoxia which is a high risk of death, and lead to a secondary disaster which involve rescuers. Therefore, it is necessary to study the risk of cryogen and take proper preventive measures for using cryogen.

Level	Concentration of oxygen in air(%)	Symptoms
	18	Safely limit
1	16～12	Increase pulse rate and breathing rate, difficulty concentrating mentally
2	14～9	Defective judgment, sighs frequency
3	10～6	Nausea, vomit, immobile condition
4	Under 6	Faint or fall unconscious with gasping respiration (one breathe in oxygen-free condition)

When using an elevator to carry liquid nitrogen, never ever get on the same elevator with the liquid nitrogen (Carry liquid nitrogen itself only on an elevator.)

When handling cryogen, handle it very carefully in a closed room not to be anoxia.

Safety

18 Do you understand biological hazards?

Biological hazard is a disaster caused by pathogenic microorganisms and parasites.
Pathogenic microorganisms which cause biological hazards cannot be seen with naked eyes, so slight negligence or carelessness can lead to serious infectious disasters.

There are potential places where biological hazard may occur around research and medical areas in the university.
Keep out the places with no reason in order to avoid a case of biological hazard because specialized knowledge and technology are required.

In addition, it is important to observe laws and rules regarding experiments of DNA recombination, microorganism, and animals, and learn those knowledge and techniques from an expert.

Waste which is attached them is called “Industrial waste subject to special control” by laws and “Infectious waste” or “ Hospital waste” by the university, so it is necessary to do waste treatment for it under close supervision.
It is necessary to render pathogenic microorganisms harmless when possible.

There are potential places where biological hazard may occur in the university.
Take the lesson from teaching staff and observe the rule when using pathogenic microorganisms.

Safety

19 Do you know about the risk of radiation?

Radiation can be separated into 2 types, natural radiation from the universe and man-made radiation. What can create radiation include radioactive materials and instruments.

Radioactive materials are substances which mainly create radiation α beam which is blocked by a piece of paper, β beam which is blocked by several mm of aluminum plate, and gamma radiation which is blocked by 10cm of lead place due to high penetrating power.

The other hand, instruments mainly create X-ray.

There are vulnerable places to affect by radiation due to researches and medicals in the university. It is necessary to have special knowledge and techniques when using radiation. Keep out the places where being used radiation with no reason.

In order to avoid health problems by radiation, it is important to observe laws and rules regarding radiation and learn those knowledge and techniques from an expert.

There are vulnerable places to sustain health damage by radiation in the university.
Take the lesson from teaching staff and observe the rule when using radiation.

Safety

20 Can you explain about the risk and harm of chemical substances?

Risks of chemical substances include explosion and ignition. Explosion by chemical substances are called chemical explosions. The explosions can be divided into 3 types: an aggregate explosion (explosion by solid), a gas phase explosion (a gas explosion), and an explosion by dust/mist. Minimum ignition energy of a gas phase explosion is 0.02～2 mJ, so it is known that the static electricity of a human body (2.5mJ) can enough cause explosion.

Chemical substances have harmful effects on human body and environmental pollutions. Suicides by hydrogen sulfide poisoning (over 700ppm) and suicides by carbon monoxide poisoning (over 500ppm) used briquette are increasing recently. There are some cases such as injury cases by putting poison into someone's drink purposely and suicide cases by drinking it one's self. Furthermore, chemical sensitivity, an allergic reaction provoked by small amount of chemical substances, becomes a social problem.

It is important to get information regarding the risk and harm of chemical substances through Internet sites, etc. when handling chemical substances in practice. Also, many chemical substances are handled in our life. Read the instruction carefully and learn the risk and harm of chemical substances.

Many chemical substances are handled for education, researches, and medical in the university.
Keep out the room with this sign below, means handling chemical substances, with no reason.

It is important to observe laws and rules regarding chemical substances and learn those knowledge and techniques from an expert when handling chemical substances.

Many chemical substances have potential risks and harms, such as explosion, fire, health problems, and environmental pollution.
When handling chemical substances, use them after understanding of the risks and harms.

Health

1 Do you know the meaning of health management?

It is essential for us to live our daily life safely and free of injuries and accidents in order to maintain our health and do our work or attend school comfortably. It is important to gain practical knowledge about what to do in the case of an emergency situation, such as a disaster, accident or injury. Furthermore, for you to be healthy both physically and mentally and lead a dynamic life, it is necessary to ensure safe lifestyle, workplace and learning environment along with keeping tabs on your psychophysical condition and doing health management. The foundation for this is “Self-management” based on having the correct knowledge about health, such as living a regular lifestyle and having the proper eating habits. Health management involves a wide range of topics, such as emergency first-aid, medical checkups, the post-checkup management based on the results of the checkups, health guidance, health education, and health promotion.

It is advisable for people who have problem of fatness and high blood pressure to take a measure as early as possible even though there are few people who make an effort for maintaining health positively from one’s earlier years.

Health

2 Do you know how to promote health?

The World Health Organization (WHO) adopted a charter (“Ottawa Declaration”) regarding health promotion at its international conference held in Ottawa, Canada in November 1986. According to the chapter, health promotion is defined as “Process that people manages their own health in order to be able to improve it. Health promotion does not just end with living a healthy lifestyle, but also involves being better condition.” The charter is aimed at advanced industrial countries and emphasizes that a risk factor in life is our lifestyle habits, that individuals and the environment form daily habits, and that the aims of health promotion are self-health management and good condition for physical and mental both.

<Medical evidence for things related to daily habits and health promotion>

A health study conducted by a person named Breslow on 7,000 people in Alameda country, California in 1965 verified that sleep, breakfast, snack between meals, drinking, smoking, exercise, and obesity are seven lifestyle factors that related to the level of person’s physical health. In 1974, Canadian Health and Welfare Minister Lalonde evaluated the importance of environment and lifestyle regarding health issues in the report.

＜Japanese government efforts＞

The Ministry of Labor has been promotion “Total Health Promotion (THP)”which is based on the Industrial Safety and Health Law since 1988. THP stipulates that both employers and employees must work for the mental and physical health by determining through the use of “Industrial Physician”, as well as providing guidance for the mental health care, exercise, sleep, smoking, and nutrition with “The cooperation of the people in charge” of each these areas. The aim of THP is to keep tabs on individual health condition in each these areas and provide a personal guidance based on their health level.

The Ministry of Labor has been promoting “Health Japan 21st century “since 2000. Health Japan 21 promotes life-long fitness(improving disease prevention and quality of life) and its essential structure revolves around the promotion of undertakings regarding health enhancement based on the establishment and evaluation of specific aims for national health medical standards as well as creating a social environment that supports the individual health promotion. The Health Promotion Act became effective in May, 2003. As a result, measures such as control policy for secondhand smoke in workplace have been significantly strengthened.

<The three elements of health promotion>

In order to realize and maintain a healthy lifestyle, the three elements of nutrition, exercise, and relaxation are important. The other hand, the health obstructive factor includes drinking and smoking.

In order to realize and maintain effective, sustainable health promotion, it is necessary for people to acquire accurate knowledge based on health education and learning, establish and improve on a healthy lifestyle, and carry out self-management.

Take a measure for not only diet, but also nutrition, exercise, and relaxation.

Health

3 Can you explain about health damage caused by smoking?

Cigarette smoke contains nicotine, various cancer-causing agents and cancer-promoter, carbon monoxide, various ciliary injurious agents, and a wide variety of other harmful substances. Cigarette smoke can have acute effects on the circulatory and respiratory systems. Smoker are at an increased risk for various types of cancers including lung cancer, ischemic heart diseases, chronic bronchitis, obstructive lung diseases such as lung emphysema, gastrointestinal disease such as gastric and duodenal ulcers, as well as a variety of other diseases. Women who smoke during pregnancy have an increased risk of low-weight babies, premature delivery, and pregnancy complications.In addition, it has been reported that the risk of getting lung cancer, ischemic heart diseases, and respiratory ailments increases because of breathing in secondhand smoke. Although the effects of the body from low-nicotine and low-tar cigarette smoking are mitigated some extent, the risk of getting lung cancer and ischemic heart disease remains higher than that for non-smokers.

The cancer death rate of smoker compared to those for non-smoker is as follows:

The risk of cancer increases as shown below.

Cancer	Uterus cancer	Liver cancer	Stomach cancer	Bladder cancer	Pancreas cancer
Death rate	1.6	1.5	1.5	1.6	1.6
Cancer	Esophageal cancer	Oropharyngeal cancer	Lung cancer	Throat cancer	All cancer
Death rate	2.2	3.0	4.5	32.5	1.7

The research in England shows that smokers live about 10 years short compared to non-smokers regarding to life duration. In contrast, data in Japan shows that male smokers live 3.5 years shorter and female smokers live 2.2 years shorter than non-smokers. And another study shows that male smokers live 5 years shorter and female smokers live 4 years shorter than non-smokers.

Smoker are at an increased risk for various types of cancers including lung cancer, ischemic heart diseases, chronic bronchitis, obstructive lung diseases such as lung emphysema, gastrointestinal disease such as gastric and duodenal ulcers.

Health

4 Can you explain about the difference between mainstream smoke and secondhand smoke?

Tobacco smoke have three types, mainstream smoke which is the smoke that passes through the cigarette itself or a filter and enters the oral cavity when smoking, summoned smoke which is the smoke that exhaled out of the mouth of the smoker, and secondhand smoke which is the smoke that rises out of the cigarette itself.

These streams can be separated into 2 types, particle phase which consist of aerosol (liquid drop) and gas phase which consist of gas.

A greater number of harmful substances are produced by secondhand smoke than mainstream. Although mainstream smoke is acidic properties, those of secondhand smoke is alkaline properties and can cause irritation in the mucous membranes of the eyes and nose.

Cigarette smoke contains more than 4,000 kinds of chemical substances and 43 of those have been discovered to be cancerous.

Meanwhile, the carbon monoxide contained in the gas phase strongly bonds together with the hemoglobin (Hb) of the red blood cells and becomes carbon monoxide hemoglobin (Co-Hb) and can cause problems hindering the oxygen-carrying capacity of the blood, ischemic heart diseases (such as heart infarctions).

The density of carbon monoxide in one's blood and the density of carbon monoxide in one's exhaled breathe are highly correlated.

The density of carbon monoxide in the exhaled breath (measured in parts per million) measures in the single digits for non-smokers but in the range of several dozen for smokers.

A greater number of harmful substances are produced by secondhand smoke than mainstream. Although mainstream smoke is acidic properties, those of secondhand smoke is alkaline properties and can cause irritation in the mucous membranes of the eyes and nose.

Health

5 Do you know about the guidance for quitting smoking?

Most smokers would like to quit smoking, but are not successful because they are addicted both psychologically and pharmacologically. The most successful way to quit smoking is to have the motivation to quit, go ahead and do it, and then continue to not smoke. But one cannot usually accomplish all of those things with just one method of quitting, so the key to quitting smoking is to combine the main elements of several methods.

There are individual and group methods for getting help quit smoking. The individual method emphasized most is one where the person seeks help in quitting smoking from a medical physician in health care facility. Education materials have been written such as “Smokebusters” and recently nicotine replacement treatments (nicotine gum) have been sanctioned and smokers can use these treatments with a prescription from their medical physician.

Group methods for getting help to quit smoking include programs based on behavioral science methods, such as the “How to quit smoking in five days symposium “and similar programs are also being tried about at public health venues such as healthcare centers.

Nicotine replacement treatments work to alleviate nicotine withdrawal symptoms that appear in smokers when they try to quit smoking by slowing weaning them off of nicotine. As supplements, nicotine gum, nicotine patches, and nose sprays, etc. are used. Nicotine gum can be prescribed as a supplement by medical physicians to smokers who have underlying medical conditions such as circulatory, respiratory, and gastrointestinal diseases and for whom it is determined needs to quit smoking. Since in Japan the concept of nicotine addiction has not yet been established clinically well as a disease, nicotine gum is not recognized as curative medicine for nicotine addiction. Therefore it is not covered by health insurance at least for the time being and uses must pay the cost of nicotine gum.

The side effects of nicotine gum and those who should not use it are as follows:
Side effects: symptoms such as vomiting from chewing it too much, heartburn, and hiccups.
Those who should not use it: those who are pregnant, breastfeeding, have life-threatening arrhythmia, ischemic heart disease, depression, and addicted to alcohol.
In addition, nicotine patches (product name: Nictotinell) was approved for import in May 1999.

There are individual and group methods for getting help quit smoking.
As an individual method, one where the person seeks help in quitting smoking from a medical physician in health care facility is emphasized.
As a group method, there is a program based on behavioral science methods, such as the “How to quit smoking in five days symposium.”

Health

6 Do you know measures to prevent secondhand smoke?

The generic term for the mix of cigarette smoke exhaled by smokers and the secondhand smoke that rises out of a cigarette itself when indoor is ETS, Environmental Tobacco Smoke.

The International Agency for Research on Cancer (IARC) and The Environmental Protection Agency (EPA) in the United States have categorized ETS as a cancer causing agent for human.

In fact, cigarette smoke in the air can cause lung cancer in non-smokers was proven epidemiologically in 1981.

Furthermore, the EPA has systematically reviewed the large number of epidemiological studies that have been carried out since that time and has released a report entitled “The Effects of Secondhand Smoke on the Respiratory System: Lung Cancer and Other Diseases.”

As reports of the chronic effects of secondhand smoke, especially lung cancer, have been well published.

The risk of death from lung cancer for wives of male smokers is higher than that for wives of male non-smokers and it is know that the risk become increases according to the amount smoked by the husband.

The results of several epidemiological studies shows that the relative risk of lung cancer for non-smoking wives due to the cigarette smoke of their husbands ranges from 1.3 to 1.5.

Since the risk increases for those exposed to second smoke according to the estimated amount of tar they are exposed to, there is a difference in the toxic substances found in the cigarette smoke of active smokers and the cigarette smoke of those who just passively inhale it and thus there is the chance that the mode of action between the two also differs.

According to recent calculations performed by the World Health Organization (WHO), the number of deaths that can be attributed to tobacco was 95,000 people in 1995 (76,000 males and 19,000 females), an increase of 100% in the past 20 years and this trend is expected to continue.

Since many diseases related to tobacco manifest themselves and cause death over a 20-30 year period after a smoker has started smoking, it can be inferred that current death statistics reflect the smoking situation of the past.

In order to prevent harm from secondhand smoke, the owners of facilities, such as business establishments, that have many of people use them are required to make efforts in the area of secondhand smoke countermeasures as part of the Health Promotion Act that went into effect on May 1, 2003.

The basic concept regarding the separation of smoking areas in public places is as follows:

①Basic principal behind the separation of smoking areas: In order to eliminate or reduce the effect of secondhand smoke for non-smokers, it is necessary to set the separation of smoking areas. When doing this, it is important to get the consensus of both non-smokers and smokers.

②Basic points regarding the implementation of the separation of smoking areas:

- Separation of spaces for smoking and non-smoking areas.
- Provision for the separation of smoking areas according to the type of facility and the needs of those who use the facility.
- The active use of equipment that helps separate smoking and no-smoking areas.
- The clarification of signs for non-smoking areas and smoking areas.

The following basic policy regarding the measure to prevent for secondhand smoke has been established at Kumamoto University.

In order to maintain and promote the health of students and teaching staff at Kumamoto University (hereinafter referred to as “university”) as well as to improve the formation of a comfortable campus environment, the university established the following basic policy regarding the measure to prevent for secondhand smoke.

1 Fundamental policy

（1）Total ban on smoking on campus, except for those areas designated for smoking by people such as department heads and private rooms (such as faculty offices). However, private rooms located in places such as facilities that currently place a total ban on smoking are also prohibited for smoking.

（2）Smoking while walking on campus is prohibited.

（3）Efforts for the measure to prevent for secondhand smoke should be made when carrying out the new construction, renovation, and refurbishment of building.

（4）Smokers should recognize that secondhand smoke has a serious effect on the health and the psychology of non-smokers due to the uncomfortable feelings, thus try not to give secondhand smoke.

2 Concrete plans

（1）When smoking in private rooms, smokers should give consideration to the amount of smoke being released outside for visitors.

（2）When heads of departments decide smoking areas, they should give consideration the following points.

i Smoking rooms should be installed proper exhaust systems such as ventilation fans.

ii Smoking areas should be established in places other than offices and meeting rooms.

iii When setting a smoking area around the entrance of a building, the area should be maintained a proper distance to prevent for secondhand smoke to people walk by.

（3）The university should seek the understanding and the cooperation of visitors regarding a total ban on smoking on campus except for those areas designated for smoking as well as tries to make the location of smoking areas known to everyone.

3 Period of implementation

The measure to prevent for secondhand smoke is effective on April 1, 2004 in the university.

Kumamoto University established the measure to prevent for secondhand smoke. Smoking, except for those areas designated for smoking, and smoking while walking are prohibited.

Health

7 Do you know how alcohol decomposes (metabolizes)?

1 Alcohol entered through the mouth is absorbed about 20% in the stomach and about 80% in the small intestine, and then goes into blood and spread to throughout body within minutes.

2 Most of alcohol in the body is metabolized by the liver. As blood level of alcohol increase, people get drunk. Alcohol is decomposed to acetate (acetic acid) through acetaldehyde in the liver. If acetaldehyde, highly toxic, remains in a body without being metabolized, symptoms such as headache, nausea, and palpitation will be appeared. It is said that acetaldehyde is a substance responsible for drunk badly and hangover.

3 Acetate (acetic acid) circulates throughout the body by the blood, is decomposed into water and carbon dioxide in the muscle or fatty tissue, and is discharged to the outside of the body.

4 Two to ten percents of alcohol is discharged externally without decomposition to urine, sweat and exhaled air.

5 It is said that the capacity to metabolize of females is less than those of males. Therefore, the blood level of alcohol of females when drinking a same amount of alcohol per same weight is more than those of males, thus it takes time for females to get sober. In addition, it is said that female hormone suppresses alcohol decomposition.

	The blood level(%)	The amount of alcohol	Symptoms
Feeling good stage	0.02∽0.04	A big bottle of beer 180ml of Japanese sake 2 glasses of whisky single	Refresh
Half drunk stage	0.05∽0.10	1～2 big bottles of beer 180～360ml of Japanese sake 3 glasses of whisky single	Half drunk Lost control of oneself Rise in body temperature Rapid pulse
Beginning of inebriety stage	0.11∽0.15	3 big bottles of beer 540ml of Japanese sake 3 glasses of whisky double	Generous Blare out with a loud voice Short temper Reel when standing up
Inebriety stage (Cerebellar deficit)	0.16∽0.30	4～6 big bottles of beer 720～1080ml of Japanese sake 3 glasses of whisky double	Staggering Talk same things over and over Breathe rapidly Nausea
Fuddle stage (involvement of The ippocampus)	0.31∽0.40	7～10 big bottles of beer 1260～1800ml of Japanese sake A bottle of whisky	Cannot stand up Dopey Cannot speak correctly
Coma stage (Bulbar involvement)	0.41∽0.50	Over 10 big bottles of beer Over 1800ml of Japanese sake Over one bottle of whisky	Cannot awake Incontinent Breathe slowly and deeply Death

Most of alcohol in the body is metabolized by the liver.
As blood level of alcohol increases, people get drunk.
Alcohol is decomposed to acetate (acetic acid) through acetaldehyde in the liver.
If acetaldehyde, highly toxic, remained in a body without being metabolized, symptoms such as headache, nausea, and palpitation will be appeared.

Health

8 Can you explain about damage by alcohol?

Alcohol is metabolized into fats, and the accumulation of the fats in the liver result in fatty liver.

Liver cells are dying and decreasing by inadequate metabolization by liver cells.

That is how to become fatty liver or alcoholic hepatitis after alcohol liver disease, and then develop into cirrhosis of liver.

Once a liver becomes cirrhosis of liver, the liver cannot be a normal.

In addition, it affect throughout body, such as pancreas, stomach and intestines, heart, brain, nerve, bone, hormone, and reproductive function.

Alcoholic pancreatitis is damage associated with heavy drinking, next to hepatic damage.

You sometime experience upper abdominal pain and back pain after taken huge amount of alcohol. It is said that the pain of pancreatitis is one of hardest pain that human have experience in one's life. Furthermore, the pain sometime cannot be blocked by morphine, leading to the death in worse case. Pancreas produce enzyme which degrade fat and protein and is excreted into duodenum. However, the powerful enzyme dissolve pancreas itself, resulting in frazzled.

In addition, pancreas produces insulin which is a hormone and reduces the glucose (blood sugar) in the blood as an increasing of the glucose level by food intake. The less secretion (or no secretion) of insulin results in high blood-glucose level, leading to diabetes. Destruction of pancreas by alcohol is responsible for alcoholic pancreatitis. Moreover, alcohol destructs pancreatic cells which produce insulin, leading to diabetes.

Acetaldehyde produced through metabolic process of alcohol and oxidative stress easily make genome in liver cells into abnormal, and then carcinogenic.

Prevent impairment of alcohol by understanding of ten rules of proper drinking.

Ten rules of proper drinking	
1	Enjoy drinking with a laugh.
2	Drink slowly at one's own pace.
3	Eat something while drinking.
4	Drink moderate amount.
5	Take two day to give one's liver a rest per week.
6	Do not force someone to drink.
7	Do not drink with a medicine.
8	Dilute high alcohol drinks.
9	Finish drinking until midnight at the latest.
10	Have a routine checkup for liver.

Damage by alcohol includes fatty liver, alcoholic hepatitis, cirrhosis of liver, alcoholic pancreatitis, diabetes, and cancer.

Health

9 Do you know about the current state of illegal drugs?

The number of arrested people for violation of the Stimulant Drugs Control Act was less than 20,000 people in 1989 and stopped increasing until 1994 and turned to increase again after 1995, then reached around 20,000 people in 1997. And the number tends to decrease after 2001 basically.

The number of arrested people for violating of the Cannabis Control Law noticeably increased after 2001. The number increased up to 2,867 people in 2008 and it was about 2.3 times greater than in 2000.

Also, the number of people arrested for violation of drugs tends to increase after 2001.

Young adults in the twenties account for 60% of the number of arrested people for cannabis and drugs in Tokyo. Thus, it is obviously that drugs are widespread around young people.

There is some concern that drug offenders are lurking cleverly in our daily life, such as illegal sale using mobile phones and internet, trade in residential street and campus, and cultivating hemp illegally at home.

The possession of cannabis, cultivation and selling of drugs by college student recognized as a social problem a few years ago.

1 If you abuse drugs,

Most of abused drugs which effect on the central nervous system give comfortable feeling, and release pain while ineffective of medicine, resulting in making “Dependence”. In addition, frequent usage of drugs tends to be ineffective, called “Tolerance”. Even though you thought that “Only once” is just by curiosity or recreation without any particular motive at the beginning, the drug dependence and tolerance contribute to a vicious cycle that the dosage and number of drugs gradually increase, leading to out of control the drug usage.

2 Effects on the mental and physical condition

Abuse of drug, such as stimulant, completely destructs your mental and physical condition. It prevents normal development of the brain function, resulting in making mental imbalance. Abuse of drug brings a feeling of weakness and fatigue, and then a mental disability, such as hallucination and delusion at the last. Moreover, abuse of drug deeply affects main organs, bringing down a death at worst.

3 Crime by drug abuser and accidents related to the drugs

Abuse of drugs may cause not only death for acute intoxication but also mental problems, such as hallucination and dilution by pharmacological effect of drug. It may cause brutal crime, such as murder, robbery, and arson, cause a serious traffic accident and suicide oneself.

There are crimes to get a fund for drugs, too.

Young adults in the twenties account for 60% of the number of arrested people for cannabis and drugs in Tokyo. Thus, it is considered that this age is the target of drugs.

Health

10 Do you know how to prevent from drug addiction?

Characteristics of drug addiction are the following 7 points:

The seven characteristics of drug addiction
1 Uptake medicine despite one's intentions.
2 Cannot stop taking medicine although you think you can do it anytime.
3 Because of illness, it is necessary to have an appropriate treatment and assistance for recovery. However it is impossible to do it by oneself and family.
4 More uptake medicine, less effect by the same amount of medicine. It is called “Tolerance”, and the issue is getting much serious by increase dose of medicine.
5 Deny one’s medical situation of addiction.
6 Because of illness both physically and mentally, the progression of illness lead to be wreck, which will be caused death. It brings deep desperation, lose reliance of family and friends, and isolate from society.
7 Even if trying to manage the situation with people around such as family and friends because of no way to handle by oneself, it is impossible to manage.

It is said that triggers for drug abuse are the pursuit for pleasure and curiosity, but there is more.

There are cases that drug addiction is initiated by catch phrases, such as “lost weight”, “gain confidence”, “feeling of fulfillment”, “feel refreshed”, “feel uplifted” without knowing dangerous drugs, or recommendations from reliable person, such as friends, old classmate, and office mates.

You should be careful because you will sometime encounter a situation that there is a drug at the party in friend's house.

There are cases that drug addiction is initiated by catch phrases without knowing dangerous drugs, or recommendations from reliable person. You should be careful about drug addiction because the case might be happen in your daily life.

Health

11 Do you know how to get rid of fatigue?

We normally do activities work and take rests in a cycle in our daily lives and fatigue shows itself in some or another when going from activities to rest.

Although fatigue is rooted inside the body, it can also manifest itself outwardly in forms of reducing your ability for daily activities and reducing your operating efficiency and the accuracy of your work.

Although it is difficult to define what fatigue is, it is often described as “An abstract concept symbolized by fatigue symptoms appearing inside the body that one is self-conscious of, transformations in the body that can be grasped by objective medical exams, and altered physical conditions that can be judged in a comprehensive matter by reduced operating efficiency.”

The two main types of fatigue: “Physical exhaustion” and “Mental (psychological) fatigue.”

Both arise due to various elements in our work and everyday lives and can became the trigger for various illnesses (common illnesses and diseased related to work in daily life), so dealing with fatigue properly forms the basis of health self-management.

You should take the following steps to get rid of fatigue quickly.

How to get rid of fatigue	
1	Have regular habit.
2	Get enough sleep and take a rest.
3	Eat a well balanced diet.
4	Do exercise that is suited to yourself.
5	Have healthy hobbies for refreshing.

In addition, the strength of the human body decreases with age.

It is important to have a habit of doing exercise which is compromised to your physical condition from one’s earlier years, and make efforts to maintain a healthy body.

The two main types of fatigue: “Physical exhaustion” and “Mental (psychological) fatigue”. There are more ways to rid of fatigue other than sleeping and taking a rest.

Health

12 Have you ever thought about exercises for health?

Proper exercise is to get benefits with low risk such as injury.

Levels of proper exercise depend on one's condition, such as physical strength, sex, age, exercise experience, and health condition.

Exercise intensity can be determined easily by heart rate per one minute during exercising or after exercising.

Target heart rates in the age bracket are: 20's=130/per minute, 30's=125/per minute, 40's=120/per minute, 50's=115/per minute and 60's=110/per minute.

It is better to do exercise for a certain amount of time, but several 10-minutes-exercises can be effective as well.

Recommended times of exercise in the age bracket are: 20's=180 minutes/per week, 30's=170 minutes/per week, 40's=160 minutes/per week, 50's=150 minutes/per week, and 60's=140 minutes/per week.

Since one exercise per week can promise the efficient effect for people who have no fitness habits, it is not necessary to stick to the recommended exercise time and force to do exercise daily at the beginning.

The strength of muscle decreases with age.
Make an effort to improve the strength daily for the prevention of fall and fracture.

Health

13 Have you ever thought about sleep?

Stages of sleep can be divided 2 types: REM sleep (rapid eye movement sleep) and non-REM sleep.

It is considered that REM sleep is “Sleep of body “that a condition is close to brain wave same as one at awake, and non-REM sleep is “Sleep of brain “that a brain wave become bigger and slower (slow-wave sleep) as sleeping deeply.

It is thought that 6～8 hours are the average of proper sleeping time for human in order to heal tiredness moderately.

However, whether people wake up with good feeling or not serve as a barometer for good sleep than sleeping time due to individual difference.

In fact, less than 6 hours can be proper sleeping time if you wake up refreshed and do not have drowsiness in day time.

The causes of insomnia include a situation with worries and stress, and strain or excited condition such as making a presentation in front of audience, going excursion, and fun event next day.

They also include a lack of exercise, a disturbance of the rhythm of life, medicine, illness and excessive intake of caffeine.

Intense exercise and eating before sleeping also can cause insomnia.

People who suffer from insomnia try to do effort to eliminate the cause of insomnia, keep regular wake-up and sleep time, and do proper exercise.

Relaxing with playing soothing music before sleeping can be effective.

The effective of sleeping include improvement of immunity and maintaining bodily functions by stimulating growth hormone secretion.

If one cannot wake up refreshed and have drowsiness in day time, it is better to doubt insomnia.

Health

14 Do you know what mental health is?

Mental health means psychological health in the medicinal words.

Human gets stressed from daily life.

Examples of stress include deterioration in economic conditions, deterioration of human relations, tiredness, insomnia, health problem, and continuous tightness/anxiousness/impatience from any cause. Sometimes people cannot handle these exceeding stresses.

People who cannot maintain mental health because of stresses in the above mentioned experiences the following symptoms: different behavior as before (aspect, attitude, and voice sound), increasing of absence, tardiness, and early leaving, often conflict with others, increasing discursive complain, increasing drinking and smoking, worry about others behavior, decreasing working and operating efficiency, and increasing of mistakes. Others possibly notice these symptoms earlier than the said person.

Kumamoto University established the following mental health policy and makes an effort to improve mental health of students and teaching staff.

Basic policy regarding improvement of mental health in Kumamoto University

Kumamoto University recognize that improvement of mental health for students and staffs of the university is a high-profile issue for establishment of workplace and learning environment, as well as enforce of the following policy, in order to maintain the best level of activities such as education, research, and medical.

○ We offer maximum support for staffs with work problem and students with problem related to the university because of mental health problem.

○ We conduct an investigation for recognizing a problem and propose measures for solving the problem in order to support promptly for staffs with work problem and students with problem related to the university because of mental health problem.

○ We provide workplace and leaning environment for staffs and students with mental health problem not to suffer from unjustifiable discrimination.

○ We respect the privacy of staffs and students with mental health problem

○ We provide staffs and students with information include supports for stress in order to prevent mental health problem.

○ We establish a campus rule for staffs and students with mental health problem to return to the workplace and learning place.

○ We set up campus counseling rooms that the following person can consult easily: staffs and students with mental health problem, the said colleague, and staffs that instruct, supervise and teach the said person.
○ We support health condition to maintain good psychological condition as necessary.
○ Responsible staffs for management and supervising have a responsibility to take care of staffs and students with mental health problem at workplace and learning place. And the university shares the responsibility.

The basic policy above is a part of activities for the improvement of workplace and learning place at Kumamoto University in order to establish a healthy mental welfare.

And we operate the policy in association with other policies of the university (such as policy of equal opportunity and sexual harassment) and enforce various measures in association with each committee (such as acting committee, education committee, and students committee).

Mental health means psychological health in the medicinal words.
Sometimes people cannot handle exceeding stresses, such as deterioration in economic conditions, deterioration of human relations, insomnia, and health problem. People who cannot maintain mental health because of stresses experience the following symptoms: different behavior as before, increasing of absence, tardiness, and early leaving, often conflict with others, worry about others behavior, decreasing working and operating efficiency, and increasing of mistakes. Others possibly notice these symptoms earlier than the said person.

Health

15 Can you explain about health problem caused by VDT working?

VDT (Video Display Terminal) work involves operating the keyboard or mouse while looking at a cathode-ray tube or liquid crystal display monitor. More specifically, it involves operating office automation equipment such as computers.

According to recent surveys, the age range for those doing work involving VDT has widened and has come to the point where almost everyone, including middle-aged management level employees, use VDT equipment for a variety of reasons.

Furthermore, the use of VDT equipment for communication media such as the Internet and e-mail, as well as for entertainment purposes outside of work, such as playing games, has been increasing.

VDTs have become so prevalent that you can consider them a modern basic necessity of life, similar to cell phones now in our daily lives.

Work involving VDTs will not cause health problems if sufficient work and health precaution are used.

However, using VDTs for long periods of time or in unfavorable working conditions can cause fatigue and health problems.

The frequent occurrence of subjective symptoms such as eye strain of those doing work involving VDTs has become a problem in foreign countries as well. Research that tries to shed light on the root causes of these symptoms and measures to fight them has been progressing.

Subjective symptoms can be divided into several group, symptoms of eyes (eye strain), neck, shoulder, arm (pain and tiredness), and psychological symptoms (fatigue, jitteriness, and insomnia).
The frequency and intensity of these subjective symptoms are connected to such things as the nature of the VDT equipment itself and environmental factors such as the condition of the lighting and ventilation, as well as individual factors such as length of time used, age, gender, and level of concentration.
Therefore it is necessary to have countermeasures that take into account these things.

<Environmental measures>

Displays screens are made of glass and easily reflect outside light, which in turn makes letters and symbols harder to see.
Therefore, it is important to adjust the amount of natural lighting by using blinds and curtains, or using indirect lighting instead.

<Work management measures>

1 It is important to adjust the brightness and contrast between letters and the background of CRT and liquid crystal displays.
If you adjust the illumination intensity too highly, the letters actually become harder to read and this can cause eye strain.

2 Work involving VDTs restrains the body and can be the cause for fatigue and pain in parts of the musculoskeletal system, such as the neck, shoulders, arms, and lower back.
Furthermore, having display monitor placed too high can cause dry eyes.
Therefore, it is important to adjust the physical relationship between the height of your seat and the placement of the display monitor and keyboard.
Make sure that (a) your elbows are at the level of the desk and (b) the level of the display monitor is below your eye level.
Use a chair that is stable, easy to move around in, and can be adjust the height.
It is important to place the chair so that it is directly facing the equipment.
In particular, when using a laptop computer you should not place your eyes too close to it because doing so will make it more difficult to use the keyboard. Also, be careful with your posture.

3 It is important to take breaks when using VDTs.
Try not to exceed one hour of straight use, and take a 10-15 minutes break before starting up work again.
Although it depends on the individual person, it is effective to take one or two breaks in between continuous use for refreshing in order not to place a mental burden on yourself.

4 Since computer mice are used on the side of the keyboard, they cause the elbow and wrist joints to be in an uncomfortable position and end up putting stress on them as a result. In addition, since the stress put on the index finger due to clicking the mouse is quite large, it is important to pay attention to maintaining good posture.

The guiding principle of the Ministry of Health, Labor and Welfare required for people those who work involving VDTs to do the following management matters: (a) Medical checkup before arranging the position and (b) Regular Medical checkup and (c) Medical checkup after arranging the position.
Specified examinations of the regular medical checkup are as follows:(1) investigation of work history, (2) presence of absence of subjective symptoms, (3) ophthalmologic examination (If it is proper visual correction and contact glass), and (4) the musculoskeletal system.

We need to exam health condition by the regular medical checkup in order to ensure a healthy life.
In addition, daily health management (regular lifestyle of good appetite, good sleep and smooth defecation, daily habits of enough rest, sleep and moderate excises, stress releasing and refreshing) is important.

Even if you have made improvements working environment and working conditions with the care of the point above and you still cannot get rid of subjective symptoms such as fatigue, it is necessary to consult industrial physician without hesitation.

VDT (Video Display Terminal) work involves operating the keyboard or mouse while looking at a cathode-ray tube or liquid crystal display monitor and can be responsible for symptoms, such as eyes (eye strain), neck, shoulder, arm (pain and tiredness), and psychological symptoms (fatigue, jitteriness, and insomnia).

Health

16 Do you know the symptom of influenza?

A new strain of influenza virus (A/H1N1) had been epidemic through the world in 2009.
Since it is possible that a new strain of influenza virus will come out in future, we have to care about it.

Typical symptoms of seasonal influenza are high fever (more than 38º), muscle pain, and joint pain, which are slight different from symptoms of a common cold (runny nose, cough, mild fever, especially high fever). It is very important to see a doctor because you sometime cannot figure out whether symptoms are by either common cold or influenza.

Taking medicines and rest will cure influenza.

Spit and nasal secretion with influenza virus would spread out as small droplets by sneezing and/or coughing. You will be infected with influenza virus when you inhale the droplets with or eat a food by hand with the droplets. It is important for a protection from influenza virus by wearing mask, gargle, and hand-wash during high season of influenza.

Vaccination of influenza is an effective way for prevention.

The proper timing of vaccination is around November, which is before the high season. The effect will appear after 2 weeks of vaccination, which will be last for about 5 months.

If you are in poor physical condition and have a fever, compared to common cold, you should go to a hospital on suspicion of influenza.

Health

17 Do you know the symptom of tuberculosis?

An incidence of tuberculosis is reported as one in 10,000 students per year.

However the incidence of tuberculosis is quite rare (actual number is one during several years in total), even though it could happen one tuberculosis patient in Kumamoto University per year, according to the report.

You might consider an infection of tuberculosis if mild fever, cough and sputum have been last for more than 2 weeks.

You do not need to worry too much because symptoms of tuberculosis are similar to that of severe cold. But if you have these symptoms, such as sweating, losing weight, poor appetite, and fatigue added to the condition above, it is necessary to consider a possibility of tuberculosis.

Kumamoto University provides a chest X-ray examination in the annual health check, and a tuberculin reaction for students in the schools of medicine and pharmacy since the students in the schools might contact with tuberculosis patient during practices.

It is important to take a chest X-ray examination for early detection and early treatment and to manage your physical condition on a daily basis for building up resistance.

Treatment of tuberculosis is done by anti tuberculosis medicine. Although tuberculosis is curable illness by continuous medication of the medicine, it takes at least 6 to 9 months of orally medication.

However, delayed diagnosis of tuberculosis can make patient more severe condition to be stubborn, which sometime leads to death.

In addition, it increases the risk of passing the infection on family, colleague, and friends.

If you have mild fever, cough and sputum for more than 2 weeks, see a doctor without overestimate yourself even you are young.

Health

18 Do you know the differences of symptom between measles, bastard measles, chickenpox and mumps?

Measles was epidemic mainly in one's 10s and 20s in 2007. The incidence had affected on more than 90 facilities of universities and junior colleges and 240,000 college students (except Tokyo). It is predicted that an outbreak of measles will be continued in children and students. Kumamoto University recommends confirming about history of disease and vaccination, and antibody test against viruses in the blood for measles, bastard measles, mumps and chickenpox. When you become these diseases after entering Kumamoto University, it is necessary to contact the health center or go to a hospital. In addition, you need to have a treatment with bed rest at home or in hospital until you get doctor's approval after disappearance of rash and normal body temperature in order to recover physical condition and prevent infection.

Measles are characterized by a high fever around 38 to 39 degree calcium, which usually last for 3 to 4 days. After slight decline of fever, high fever around 38 to 39 degree last for several days. It also cause severe cough with less sputum. Rushes usually appear 4 days after onset, which are initially appeared on the face and neck as 2 to 3 mm of red-round rushes. The rushes would spread in the chest and arms, and additionally spread in the back and legs. At that moment, the rushes would be merged each other, change color into dark brown color, then gradually recover from measles. Although there is some pigmentation during recovery as result of rushes, it will be gone in 1 to 2 weeks.

A symptom of bastard measles is slight cold at the beginning, and then fever around 37 to 38 degree and red rushes in the whole body at the same time. The rushes come in all shapes and sizes and do not cause itchiness. The rushes appear on the face, neck and behind the ear at the beginning, which would spread to whole body. Fever and rushes cease within 1 to 4 days and swellings are observed in the lymph nodes of neck, under the ear and underarm.

A symptom of chickenpox usually last slight fever around 37 to 38 degrees for 2 to 4 days, although one in four patients may have no fever sometime. Eczema of chickenpox is red rushes at the beginning, subsequently slightly swollen up, become blisters, and then scabs then recover. The course of the eczema progress rapidly within couple hours to 3～4 days, which will spread to whole body, arms and legs, in the mouth, head skin.

A symptom of mumps is fever and swelling under the ear. The swelling sometime occur only one side, but sometime both sides, because there are salivary gland, parotid glands and submandibular glands (make saliva in the glands). You usually lose your appetite because of pain around the swollen region during opening mouth or eating a food with salivation. Decreased intake of water sometime makes you status of dehydration because of fever. You have persistent fever and swelling for 3 to 7days, and then they would disappear.

Remember the symptoms of the diseases since you may catch them even if you got childhood immunization.

Health

19 Do you know what infectious diseases through blood are?

There are clinical practices which contain programs handling blood and body fluid in the medical school.

When handling patient's blood contained hepatitis B virus, hepatitis C virus, HIV (AIDS virus), incidents that one sticks an injection needle of the patient's blood into one's own hands or fingers sometimes happen accidentally. In the case, it is necessary to inform a manger of the practice and conduct infection prevention according to a protocol which is given from a hospital and institution of practice.

And also, it is necessary to report to a teacher/an office worker in charge, and Health Care Center about the situation.

It is reported that there are 2 type of infection by hepatitis B virus (HBV): transient infection and persistent infection. Infection by HBV is usually transient in healthy person, leading to typical symptoms of acute liver inflammation type B, such as fatigue throughout the body, nausea, loss of appetite.

Liver would restore to its former state in most of case even though liver cells had been damaged because liver cells have potency to grow.

When a large amount of virus enters the body, hepatic encephalopathy will be developed within 8 weeks after similar symptoms to acute liver inflammation. In some case, remarkable decrease of clotting factors in the blood lead to diagnosis as severe hepatitis.

Because liver cells in wide range of the liver have severe damage in the case of severe hepatitis, patients of severe hepatitis frequently progress to death without an appropriate treatment, due to an interference of proliferation and recover in the liver.

Type C hepatitis is an insidious disease and symptoms of type C hepatitis are similar to that of type B hepatitis at the beginning such as fatigue throughout the body, abdominal discomfort, nausea and vomiting. However, a rate of type C hepatitis is much lower than that of type B hepatitis.

Type C hepatitis ranges in severity from no symptom to fulminant.

Some patient recovered from acute type C hepatitis due to the complete elimination of HCV from the body. However, infection of the virus frequently sustain even in healthy adults who have normal immune function.

Sixty percent of patients develop into chronic hepatitis, and half of the patients develop into cirrhosis, then half of the patients develop into liver cell cancer.

Most of people who are infected with Human Immunodeficiency Virus (HIV) have no symptom. It is sometime observed that acute symptom of infectious mononucleosis or influenza last for 2 to 3 weeks at the beginning.

After that, infection of HIV continuously occurs in CD4 positive T cells, leading to decrease number of CD4 positive cells.

Decrease number of lymphocyte cause suppression of immune function in whole body, leading to acquired Immunodeficiency Syndrome (AIDS) accompanied by secondary disease such as opportunistic infectious disease (carinii pneumonia and esophageal candidiasis), Kaposi's sarcoma and brain lymphoma.

Infectious diseases through blood include hepatitis B virus, hepatitis C virus, and HIV (AIDS virus).
When handling human’s blood and needles, be careful of infections.

Addendum 1

Counseling for mental health

< Various efforts to find out students and staffs with mental health problem. >

(1) Notice the existence of “Counseling Room”.

Neuropsychiatrist and clinical psychotherapist are assigned in the health center of Kurokami South Campus, and teaching staff in charge of counseling for study and research problems are delegated Kurokami South Campus, Honjo-Campus, and Oe Campus in the university.

In addition, “Counseling for anything “is arranged in the Student Affairs Office, and supports to solve all problems regarding study and life.

It is necessary to get these support systems across students and staffs at every occasion such as orientation.

(2) Setting counseling and points of remember to find them.

① Setting office hour and “Individual counseling”

Post a notice in front of the one’s room about schedule (minimum 2 hours per week) when students can come to consult.

Set up counseling in the daytime and avoid doing it in a closed room with keeping minimum privacy as for the counseling.

Individual counseling for students who seem not to have problems can be effective.

Couple minutes of counseling can help to build up relationship.

② Attend a mental health lecture.

The Central Health and Safety Committee give several lectures for improvement of students’ and staffs’ mental health per year.

It is necessary to attend the lectures as much as possible and make an effort to improve mental health at work and learning place.

③ Focus on probable students

Examples of probable students who have mental health problem include, “Truant students”, “Students with few credits”, “Students who take a leave of absence due to illness “, and “Holdover students”.

④ To keep an eye out for signs of students

It is important to find mental problems early from spiritual change (big change of feeling), physical symptoms (Truant due to headache or stomachache), and daily behavioral change (expression, attitude, and way to speak).

Early signs of maladaptation to campus life	
Behavior/Attitude	Increased absence/tardiness/leave early, Fall behind in one's grades, Avoid people, Disinterested, Suffer melancholy, Get irritated, Rough behavior, Aggressive, Rapid mood swings, Impulsive, Messy, Dirty with disheveled outfits
Expression/Speech	Expression: Darkened, Rock-faced, Empty, No change, or too bright Speech: Speechless or Talkativeness, argumentative
Thought/Judgment	A self-centered idea, A subjectivity of judgments, Weird idea, Think others' things as relevant to oneself, Worry about other behavior and one's gossip or personality, Become lack decision and undecideness, Or make a bold decision

Mental Health in universities～Guide book for teachers
(from Japanese National University Council of Health Administration Facilities)

< Learn how to response after finding students and staffs with mental health problems.>

(1) Things to be careful before counseling

Talk : Talk to the person naturally with consideration for one's surroundings.

Information gathering before counseling: Obtain information from the friends and the family in full respect of the person's "Privacy" if you cannot get enough information with talking to him/her.

(2) Things to be careful when counseling

Make the person relaxed: Let him/her mind relaxed and listen to the person's talk at slowly pace when counseling.

Importance of enough time for counseling: If you are busy and cannot get enough time for counseling, you should better to postpone the counseling till the day that you can get enough time.

Do not rush to conclusions. : Listening to the person's worries carefully is more important than persuading and giving advice.

It is important to think from the person's point of view since rash conclusion and advice is not effective.

It makes matters worse to deny what the person says in order to cheer the depressed person up easily or dispel the delusions.

Care must be taken because unconsidered question exacerbate anxiousness.

Think how to solve the problem: Think where, who, how to support the person after revealing the problem.

Chose who consult with: There are various specialists and cooperated establishments in the university.

You need to work together with Health Care Center, school counselor specialists (in the Student Affairs Office); teaching staff in charge of counseling for study and research problems, and school committee of each faculty depend of the problem.

You need to contact a specialist (such as specialist of Health Care Center) in case of urgent emotional disorder.

Consideration for the person's privacy: You need to gain permission from the student for the content that you will talk to other people in advance.

You need to give a consideration to prevent invasions of “Privacy” although correct information exchange is important to ask other peoples’ supports.

(3) Things to be careful after counseling- to consult with specialist

The family’ and friends’ support: The family and close friends with consideration for the person’s privacy can be helped when teaching staff’s support does not go well.

Go to a specialist with teaching staff: (Staff-visiting the counseling room with the student)

It is a good way that teaching staff go with the student as necessary.

If the student have “Mental issue” and need a specialist’s support, it is better to ask “Let’s go to the counseling room with me?” and visit it.

(Only teaching staff visits)

Teaching staff should get in contact “Counselor” and discuss how to care the issue if the student denies the teaching staff proposes.

“Visiting the counseling room directly”, “Telephone”, and “E-mail” are available in the case.

(4) Examples of emergency and what to do for the situation

Examples of emergency: “Emergency support” is needed in the following situations; the student does not get one’s own situation with symptoms like “Freak out” or “Depression”, and cannot control one’s action. (For example, the student speaks gibberish, does violence to others, says “I want to die “, and harm oneself.)

Point:

① Ask a teaching staff involved for support : Ask a teaching staff involved around you for support at first.
It is necessary to respect the student’s privacy so as not to stretch a story unnecessarily in the case.

② Contact a specialist : Contact a specialist and ask direction.
Contact the Health Care Center or instruction section in charge of the faculty in the university.
Ask the hospital if the student goes to hospital.

③ Contact the family : Contact the family after getting the student’s permission when possible.
Although he/she needs to decide to seek medical attention or to get hospitalized by him/her self generally, the parent cans decide at an emergency case.
When you cannot get contact the parent, ask instruction section in charge to contact them, or need to ask for a support to Health Care Center and Police as necessary.
Consideration is necessary to try to settle the problem peacefully due to the issue relating to the person’s future.

④ Emergency : When there are no specialist at Health Care Center at night, contact the hospital which the student going or call fire department. (Emergency hospital of psychiatry by rotation for nights and holidays are unstated in newspapers.)
It is possible to contact the hospital by either fire fighter in the ambulance, instruction section, or Health Care Center.
Staffs on site or yourself need to contact them in time-sensitive situations.

< Tiredness by working long hours and the measures >

Working long hours, especially overtime work, at work and study place is likely to cause damage in mental and physical health.

The university set tougher standards for overtime working due to reduce overtime working according to Industrial Safety and Health Law.

Staffs who work 80 hours per month for overtime or working on a day-off are required to notice to the university and have counseling by an industrial physician.

Students also tend to study until late night or for long time due to write a thesis.

The university established mental health policy and carries out the measure to improve mental health same the level as staff. Sufficient considerations are necessary in class and laboratory.

Addendum 2
Safety and Health Management and Overview of Industrial Safety and Health Act

1. The Necessity of Safety and Health Management

National universities become a national university corporation since April 2004 and started as new corporations which can do self-managing under self-responsibility.

On the other hand, basic conditions of employment related to teaching staff are not applicable of the former National Civil Service Law or Rules of the National Personnel Authority and are covered by other laws, such as Labor Standard Act or Industrial Safety and Health Act.

Here we give an outline of an importance of daily working and campus life for teaching staff who work and students at Kumamoto University from the aspect of Industrial Safety and Health Act.

At first, we would like let you to know an overall picture of the Act. At the same time, here is an explanation how to manage Industrial Health and Safety Management System, such as what points of view on daily life are important to act for prevention disasters based on the assumption that working accidents are the inevitable, and what type of systematic management is needed to establish safety, health and comfortable workplace.

< There is danger (risk) lurking at workplace. Check on your surroundings first >

To check what kind of risk are hidden in our working place, it should be an organization which can figure out “Do you feel what or where a risk is?” from equipment instruments to work methods.

For that, the responsibility of an employer is clarified and self-safety and health management is required under the Industrial Safety and Health Law.

An employer means a president, a chief executive of the university, as well as the university itself.

There are many teaching staff and multiple numbers of-students at the workplace which is called the university.

It is important for each person to be aware of security for your surroundings first and develop an awareness/movement for security of laboratories/experimental laboratories and whole campus.

There are a lot of independent works such as experiments and Research and Development Department in universities is in special environment, leading to a disaster sometime.

In addition, violation of the Industrial Safety and Health Law is held criminal liability and stricter punishment.

It is important to work on, not only safety-conscious for the Industrial Safety and Health Law, but also dealing with PRTR method (Pollutant Release and Transfer Register) or ISO14001 in order to prevent work accidents.

< What point is important to work on?
It is advisable to do daily management with the following points in order to effect industrial safety and health management >

- A plan for safety and health has been completed?
- Is there a sufficient management system?
- Are concrete measures related to equipment/chemical substances established?
- How is the state of implementation of education?
- Is working environment measurement implemented as necessary?
- How is the state of implementation of medical checkup for teaching staff?
- Are rules set?
- How are various notifications or knowledge?

< Learn the mechanism of work accidents>

When thinking about work accident prevention, it is very useful to understand the source and why it happens.

The sources of work accidents include proximate cause and remote cause.

Proximate causes include physical causes (unsafe/unsanitary condition) and human causes (unsafe/unsanitary action).

Work accidents are brought into contact with these 2 causes.

Insufficient safe management of universities cause work accidents, and the university can be accused the responsibility for management.

(1) Physical causes include as follows:

Flaws of machineries/equipment/materials, defects of safety facilities, defects of workplace/layout of things, defect of protective equipment/clothes, defects of work environment, defects by natural environment/external factor, and defects of work methods.

(2) Human causes include as follows:

Taking out safeguards, failure safeguards, leave unsafe/unsanitary condition, create dangerous or harmful conditions, using machineries at undesignated place, cleaning/repairing machineries/equipment which are in operation, defect of protective equipment/clothes, and approaching to hazardous areas.

(3) Proximate causes include as follows:

Not clarified command structure, flaws of the assignment of responsibility (a person in charge of managements machinery/equipment, inspection and operation), defects of prior evaluation when installing machineries/equipment, defects of safe and health patrol (unadministered, leaving problems), defects of enforcement scheme / work project, defects of work manual, unpicked operation chiefs/ failure of enforcing duty, defects of safety and health education, and defects of contacts and meetings.

< The Industrial Safety and Health Law is a source of knowledge for safety and health measures >

Safety and health measures for various machineries and various hazardous materials can be improved by using full advantage of knowledge from the Industrial Safety and Health Law.

(1) Health measures based on the Industrial Safety and Health Law include as follows:

- Use harmless alternative materials.
- Use them hermetically.
- Set local exhaust equipment.
- Put protective equipment on workers.
- Carry out health education for workers.
- Carry out working environment measurement for hazardous materials.
- Carry out special medical checkup for workers who do hazardous work.
- Reduce work hours.
- Set up break rooms separately.

(2) Safety measures for machineries based on the Industrial Safety and Health Law include as follows:

- Put a cover on hazardous parts.
- Use safety tools and protective equipments.
- Provide thorough safety education.
- Restrict workers.
- Establish a safety inspection system.

< Prepare for new accidents with understanding sources of actual accidents and the souces pointed out. >

(1) Examples of the source of poisoning with organic solvents and particular chemicals are as follows:

- Defects of equipment / alarm devices
- Unaccomplished safety and health education
- Unused a respiratory protective equipment
- Using a respiratory protective equipment incorrectly
- Unaccomplished operation procedures
- Lack of knowledge about risks and harms

(2) Examples of the source of oxygen deficiency diseases are as follows:

- Insufficient operation procedures
- Unpicked operation chiefs/neglect of duty
- Insufficient setting up restricted area and signs of hazardous areas
- Unadministered concentration measurement
- Unadministered special education

・Insufficient familiarized work environment
・Insufficient a way of coping in case of trouble
・Insufficient a way of evacuating in case of trouble
・No ventilation
・Equipment in poor condition
・Unused breathing equipments

＊Safety and health education/practice based on the source of accidents described above are important.

Try to plan and carry out measures continuously in campus as much as possible.

For examples, carry out a workshop for safety and health, firefighting training/evacuation training, case studies of unexpected incidents, and familiarize safety and health measures.

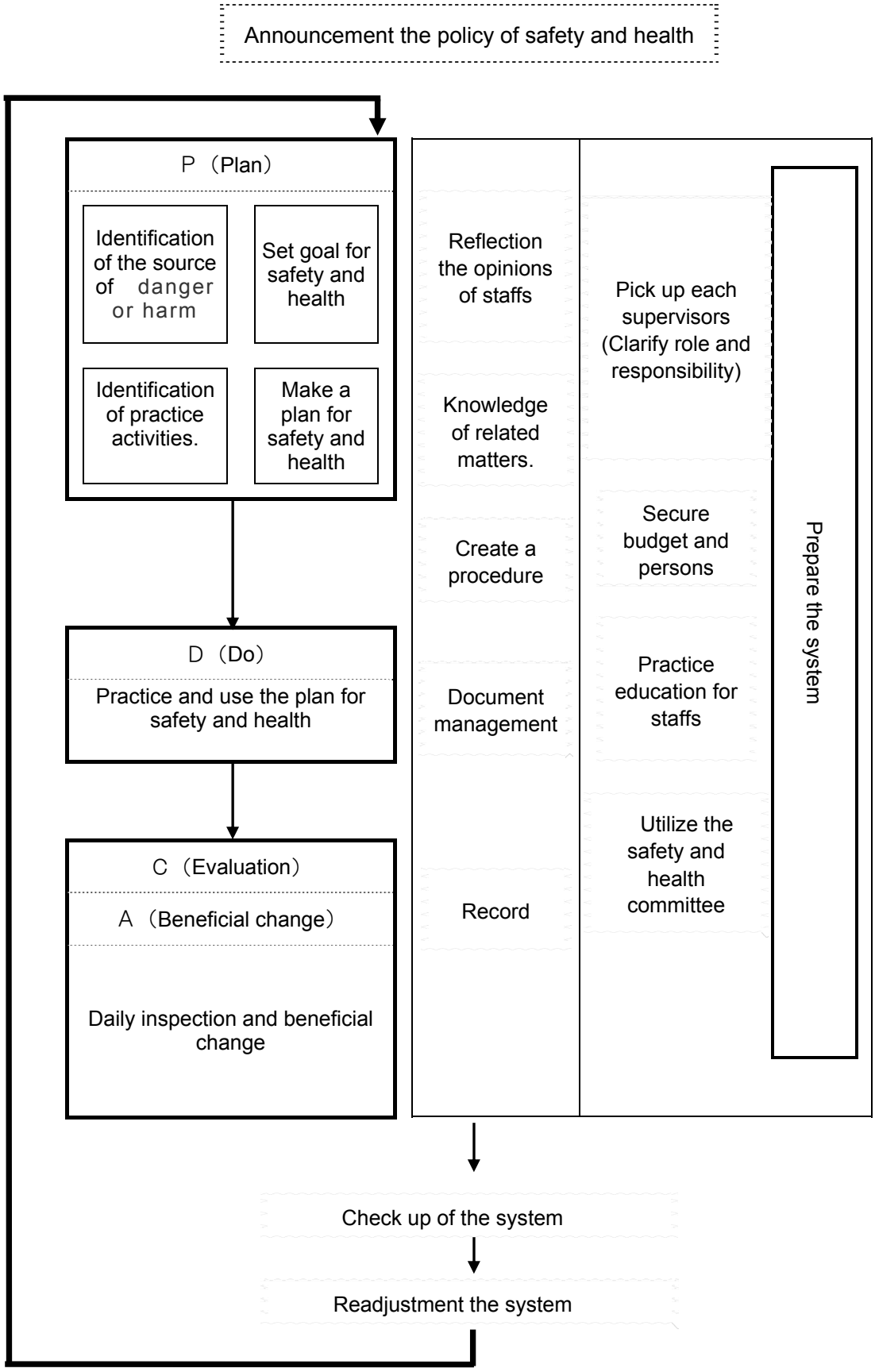
< To create a safety and health management plan >

A safety and health management plan should include in generally:

①planning period ②basic policy ③aim (goal) ④practice activities

< The flow of safety and health management system >

The safety and health management system is indicated 【P(Plan)→D(Do)→C(Check)→A(Act) 】as shown. The president of the university announces the policy.



＊Quote from Kumamoto Labor Department “A basic framework of safety and health management system”. Figure of the flow of safety and health management system.

< Concrete safety and health management activities are as follows >

(1) Hold a safety and health committee regularly.
  ① Hold the committee monthly.
  ② Keep a record of the process of research and council.
  ③ Hold it after going on patrol.

(2) To patrol workplaces by safety and health committee.
  ① Do not miss unsafe behaviors.
  ② Make beneficial changes for unsafe state.
  ③ Check if unqualified person does restriction works.
  ④ Employer also does patrol regularly.

(3) Do safety morning assembly

(4) Check up/maintenance machineries and equipment.
  ① A periodic self- inspection, a specific self- inspection, and a self- inspection.
  ② Check up before working.
  ③ Pick up a person in charge of inspection and operation.
  ④ Create a basic inspection.

(5) Five activities(Organize/Order/Cleanup/Clean/Bringing-up)
  ① Discard unnecessary things.
  ② Enforce a stacking pattern of specified goods.
  ③ Cleanup walkway and working floor regularly.
  ④ Ensure a storage method to be able to take things out easily and safety aisle.

(6) Create a working manual.
  ① Give priority to high-risk operations.
  ② Involve workers to make the manual.
  ③ Readjust it regularly.
  ④ Make a manual for non-steady works.

2. The Industrial Safety and Health Act

< Establishment and the background of the Industrial Safety and Health Act >

Worker's life/body/health are of the utmost importance for workers, which are the key issue of Industrial Act to avoid impairing that by works.

The risks of industrial accidents and the sufferers increased during high economic growth from the1960s by the following reasons: big, speed-up, and complicated mechanical equipment, and then incrassated labor intensity, and usage of new dangerous/harmful materials.

The Industrial Safety and Health Act was established in 1972 to solve these problems as well as to enhance the simple regulation which is stated in Labor Standards Act, Chapter V "Safety and Health".

< Systems of the Industrial Safety and Health Act >

Systems of the Industrial Safety and Health Act are as follows:

· Organization for safety and health management
· Measures for the prevention of dangerous or health impairment of workers
· Regulations concerning machines and harmful Substances
· Measures in placing workers
· Measures for maintaining and promoting workers' health
· Measures for creating a comfortable work environment
· Inspection, etc
· Penal provisions

< The purpose of Industrial Safety and Health Act >

The purpose of Industrial Safety and Health Act is to establish minimum standards concerning the prevention of industrial accidents, as well as to facilitate the establishment of comfortable working environment (Article 1).

Like this, the Industrial Safety and Health Act is not inactive purpose to just prevent industrial accidents but passive purpose to establish of comfortable working environment for workers.

＊Industrial accident; shall be defined as a case in which a worker is injured, contracts a disease or is killed due to causes attributable to buildings, facilities, raw materials, gases, vapors, dusts, etc, in or with which he is employed, or as a result of the work actions or attending to his duties (Article 2, Pargraph1).

Industrial accident has three elements as this definition says. More specifically:

① Worker-induced (Accidents caused by workers. Thus, students are not eligible for Industrial Safety and Health Act.)
② Work-induced(Accidents caused by condition of building and equipment, workers behavior, and other works)
③ Personal injury (Accidents include worker's injury, disease and death. Therefore, property damage is not eligible.)

＊Death by overwork: It is an occupation accident in the case of death related to work obviously. (Such as bleeding in the brain)

＊Suicide induced by overwork: Suicide is originally caused by one's will. However, if suicide can be proved that suicide is by psychotic disorders which are suffering from work related accidents, there is a causal connection with industrial accident.

< Responsibilities of people involved under the Industrial Safety and Health Act >

(1) Employer (Article 3, Pargraph1)

Employer shall be defined as "One who carries on an undertaking and employs a worker or workers (Article2 Pargraph1). It shall be corporation itself, in case of a business corporation.

Responsibilities of an employer are as follows:

・To comply with the minimum standards for preventing industrial accidents

・To ensure the safety and health of workers in workplaces through improving a comfortable working environment and improving working conditions

・To cooperate in the measures for the prevention of industrial accidents to be taken by the State

＊The Industrial Safety and Health Act is used in conjunction with the Labor Standards Law.

Only comply with the minimum standards based on specific and personal working condition cannot always prevent industrial accidents effectively due to actual problems of complicated and wide range of workplace.

Therefore, an employer is expected to not only comply with the minimum standards but also make active efforts more than that.

(2) Workers (Article 4)

Workers, who are protected by the Industrial Safety and Health Act, shall be defined as in Article 9 of the Labor Standards Act (Article 2, Pargraph2).

Responsibilities of workers are as follows:

・To observe matters for preventing industrial accidents

・To endeavor to cooperate in various measures conducted by employers or others

＊The definition of worker In the Labor Standards Act (Article 9); Worker shall be defined as one who is employed at an enterprise or office and receives wages there from, without regard to the kind of occupation.

(3) Students

Since students do not work, they are not eligible for a worker which is defined in the Industrial Safety and Health Act.

Therefore, students are not protected by the Industrial Safety and Health Act.

However, research activities in laboratory are conducted with a small group, which are associated with a high probability of accidents due to unsupervised situation.

Professors in charge always shall give guidance about safety.

It is advisable to instruct about safety clothes and shoes which have less risk when entering a laboratory.

< Preparation of Organization for Safety and Health Management >

It is essential to create an active and systematical management system for safety and health in universities in order to accomplish the aim of prevention industrial accidents and establishment of comfortable working environment.

(1) Organization for Safety and Health Management by manager and controller

① General Safety and Health Manager (Article 10)

The employer of a workplace above a certain size shall appoint a general safety and health manager and give him/her important assignments, not only prevention of the dangers or health impairment of workers, but also maintaining workers' health.

i Workplace subject to appoint a general safety and health manager

Universities fall under the category of “Other industries” in the Industrial Safety and Health Act and are obligated to appoint a general safety and health manager in case of regularly employing 1,000 more.

The university needs to appoint the manager due to falling under the definition of the scale.

＊「regularly employing workers of the numbers…」 means determined by not the number of regular employees, but the number of employees as ordinary state including daily workers and part-time workers.

ii Qualifications

A person who exercises overall management over the execution of the undertaking at the said workplace

iii Duties

The general safety and health manager supervise the work of safety officers as well as exercise overall management of the following matters.

（1） Matters pertaining to measures for the prevention of the dangers or health impairment of staffs

（2） Matters pertaining to the provision of education on the safety and health of staffs

（3） Medical examination and others for maintaining and promoting staffs' health

（4） Matters pertaining to the investigation of the causes of industrial accidents and the measures for preventing the recurrence of such accidents

（5） Matters to announce the policy of safety and health

（6） Matters pertaining to measures based on the investigation and the result of risks and harms for building, equipments, and works, etc.

（7） Matters to make a plan, practice, evaluate and make improvements for safety and health

iv Responsibilities of Employer

Employer shall delegate to the general safety and health manager for fulfill duties and inspect the performance of duties.

② Health Officer (Article 12)

The employer of the workplace above a certain size shall appoint a health officer and give authority to him/her on health matters. The health officer must perform duties, such as the measure of detection of disease early, etc. by going around workplace, etc.

i Workplace subject to appoint a Health Officer

All employers of workplaces regularly employing exceeding 50 workers shall appoint a health officer who exclusively assigned to the workplace as a rule.

In addition, those workplaces regularly employing exceeding 1,000 workers or those workplaces regularly employing exceeding 500 workers, of which 30 or more workers are engaged in harmful work, shall appoint at least one full-time health officer.

ii Qualifications

The employer shall appoint a Health Officer in accordance with the classification of the work at the said workplace concerned from among those who have obtained a license from the Director of the Prefectural Labor Bureau or those in possession of the qualification.

iii Duties

The health officer exercises the following matters:

（1）Matters pertaining to measures and finds staffs with heath problems
（2）Matters relating to invest of working environment
（3）Matters relating to the improvement of working condition and facilities
（4）Matters relating to the inspection and maintenance of work health protective equipments and first-aid tool, etc.
（5）Matters relating to health education, health counseling and other matters for retain staff's health
（6）Matters relating to make statistics regarding injury, disease, death, absence and transfer
（7）Matters relating to the control of records for works and health diary

③ Industrial Physician

It is essential to medical activities by doctors to provide worker's health care effectively, such as providing medical checkup for workers, investigation of the causes of worker's health impairment and the establishment of the measure for prevention of recurrence.

The employer of the workplace above a certain size shall appoint an industrial physician and give authority to him/her on health matters.

i Workplace subject to appoint

All employers of workplaces regularly employing exceeding 50 workers shall appoint an industrial physician.

Those workplaces regularly employing exceeding 3,000 workers, shall appoint at least 2 industrial physicians.

In addition, those workplaces regularly employing exceeding 1,000 workers or those workplaces regularly employing exceeding 500 workers who are engaged in harmful work, shall appoint an industrial physician who exclusively assigned to the workplace.

ii Qualifications

Industrial physician shall be a person who meets the following requirements among doctors.

- A person who meets the requirements provided for by the Ordinance of the Ministry of Health, Labor and Welfare concerning the knowledge of medicine required to carry out health care
- A person who has completed and graduated from regular medical courses established for the purposes of developing industrial physicians in universities of industrial health or other universities designated by the Minister of Health, Labor and Welfare, and who completed the practical training provided by the Minister of Health, Labor and Welfare
- A person who has passed the industrial health consultant's examination in the category of health and hygiene
- A professor, a associate professor or a teacher who teach industrial and health subjects in a university
- A person provided for by the Ordinance of the Ministry of Health, Labor and Welfare

iii Duties

Industrial physicians exercise duties relating to staff's health care as follows:

（1）Matters relating to the implementation of medical examinations and face-to-face guidance, etc. and measures to be taken based on their results to maintain workers' health

（2）Matters relating to the maintenance and control of the working environment

（3）Matters relating to control of the work

（4）Matters relating to worker's health care

（5）Matters relating to health education, health counseling and other measures for maintaining and promoting workers' health

（6）Matters relating to health education

（7）Matters relating to investigation of the causes of the impairment of staffs' health and measures for preventing its recurrence

④ Operations Chief (Article 14)

Exam/research institutions like universities are not legally obligated to appoint. (There are some exceptions.)

However, as regards the fixed dangerous and harmful work (such as operations within high pressure rooms, works handling particular chemicals) which require prevention control of industrial accidents, the employer shall appoint an operations chief from among those licensed by the Director of the Prefectural Labor Bureau, or those who have finished the skill training course, and have the said person direct the employees engaged in the said work and handle other matters.

Duties of an operations chief are specified in each category.

(2) A system by committee involved workers

Awareness of workers is important to prevent industrial accidents.

According to the Industrial Safety and Health Act, the employer has to reflect the employee's opinion for the prevention of industrial disaster. In addition, the employer should set up following committees consisted of designated person among employees to progress an interest of prevention of safety in working place, resulting in develop a measure for it. Moreover, the employer let them search and discuss about important matters about safety and hygiene and make a speech to the people.

① Safety Committee or Health Committee (Article 17 and Article 18), Safety and Health Committee (Article 19)

Kumamoto University established and health committee to discuss safety and health at same time.

i Workplace subject to establish committees

Workplaces regularly employing exceeding 50 workers shall establish a health committee.

ii Matters of investigation and deliberation for Committee

Matters of investigation and deliberation for Health Committee are as follows:

・The basic measures for preventing worker' health impairment

・The basic measures for maintaining and improving the health of workers

・Health among the causes of industrial accidents and countermeasures to prevent its recurrence

・Important matters pertaining to prevention of workers' health impairment, and maintaining and improving the workers' health (The following matters are included):

a) Matters relating to establishing of rules for industrial health

b) Matters relating to the formulation of plans for the implementation of health education

c) Matters relating to the investigation of the toxicity of substances to be conducted pursuant to the Act and the establishment of countermeasures based on the results of the investigation

d) Matters relating to the results of working environment measurement to be made pursuant to the Act and the establishment of necessary measures based on the evaluation of the measurement results

e) Matters relating to the results of the periodical medical examinations, and the establishment of the necessary measures to be established depending on the results of such medical examination, diagnosis, checkup and treatment

f) Matters relating to formulation of the implementation plan of measures for the maintenance and promotion of the health of workers

g) Matters relating to prevent health impairment related to machines and materials that are newly adopted

h) Matters relating to prevent health impairment for workers among the matter that is to be ordered, conducted, advised or directed by correspondences (recommendations and directed plan, etc.) of Chief of Labor Standards Office, etc.

iii The composition of committee.

The health committee shall be composed of the members stated below:

a) General safety and health manager or those similar to the above

b) One whom the employer designated from among health officers

c) One whom the employer designated from among industrial physician

d) One whom the employer designated from among the workers at the said workplace who possesses experience in health

(a) acts a chairman, as regards the members other (a), the employer shall designate those recommended by the trade union where there exists a trade union organized by a majority of workers at the said workplace or by those representing a majority of workers where there exists no trade union organized by a majority of workers.

＊The number of committee shall be decided depends on the scale of business and work situations.

iv Management of the commission

· The meetings of the commission have to be holding at least once a month.

· Convocation notice of a commission and matters necessary in regard to the management of respective committees, such as decisions of proceedings, shall be decided by the committee concerned.

· The employer shall make a record pertaining to important proceedings discussed at each committee meeting and preserve the records for three years.

· Since times for a committee meeting include working hours, the employer shall pay extra wage if the said meeting is held overtime working hours.

< Measures for Preventing the Dangers or Health Impairment of Workers >

Employers and other people are ordered to take measures for the prevention of the dangers or health impairment of workers as a major regulation for safety and health by Industrial Safety and Health Act.

(1) Measures to be taken by employers

The employer shall take necessary measures for preventing the following dangers:

① Dangers due to machines, instruments and other equipment (Article 20, paragraph1)

② Dangers due to substances of an explosive nature, substances of a combustible nature and substances of an inflammable nature (Article 20, paragraph2)

③ Dangers due to electricity, heat and other energy (Article 20, paragraph3)

④ Dangers arising from the following working methods: excavation, quarrying, cargo handling, lumbering, etc. (Article 21, paragraph1)

⑤ Dangers related to places from which workers could fall or where there are concerns about slides of sand or earth (Article 21, paragraph2)

＊The necessary measures to be taken by employers for the prevention of industrial accidents for workers shall be specified and expected effects objectively.

The employer shall take concrete measures which are stated on related ministry ordinance.

(2) The employer shall take necessary measures for preventing health impairment as follows:

① measures for preventing health impairment

The employer shall take necessary measures for preventing health impairment as follows: (Article 22)

i Health impairment due to raw materials, gases, vapors, dusts, insufficient oxygen in air, pathogens, etc,

ii Health impairment due to radiation, high temperatures, low temperatures, ultrasonic waves, noises, vibration, abnormal atmospheric pressure, etc,

iii Health impairment due to operations such as gauge monitoring, precision work, etc,

iv Health impairment due to exhaust fumes, waste fluid or solid wastes.

② Measures relating to buildings

The employer shall, respecting the buildings and other constructions, take necessary measures for the maintenance of passages, floor and stair areas, and also for ventilation, lighting, illumination, heating, moisture, rest, evacuation and sanitation, and also measures required for maintaining the health, morale and life of workers (Article 23).

Measures to be taken by employers for the prevention of health impairment of workers and for maintaining health, moral order, and life of workers are specified in The Ministry of Health, Labor and Welfare Ministerial Notification related these ordinance, including the Ordinance on Industrial Safety and Health, the Organic Solvent Ordinance, the Lead Ordinance, Tetraalkyl Lead Poisoning Ordinance, the Specified Chemicals Ordinance, High

Pressure Work Ordinance, Ionizing Radiation Ordinance, Anoxia Ordinance, rules of the office, and Dust Ordinance.

(3) Measures for preventing industrial accidents arising from the work actions or behavior of workers

The employer shall take necessary measures for preventing industrial accidents (example: Lower back pain caused by carrying heavy objects) arising from the work actions or behavior of workers (Article 24).

(4) Evacuation order from dangerous workplace

The employer shall, where there is an imminent danger of occurrence of an industrial accident, immediately stop the operation and take necessary measures to have the workers evacuate from the workshop (Article 25).

< Regulations relating to machines and harmful substances >

(1) Local Protective Device (Article 43).

Machines, etc., driven by power which are not equipped with protective measures provided for by the Ordinance of the Ministry of Health, Labor and Welfare on projecting parts of moving parts, power transmission sections or speed regulatory sections shall neither be transferred nor be leased, and shall not be exhibited with a view to transfer or lease.

＜ Measures in placing workers＞

(1) Safety and Health Education (Article 59 and 60)

Since industrial accidents are caused by unsafe condition and action, to prevent this is important to practice safety and health education for providing necessary knowledge of safety and health for work.

During diversification by work modes with the rapid progress of technological innovation, changes of work method, increasing of older workers or part-time workers, etc., it is becoming important more and more to practice safety and health education in order to improve the level of safety and health.

Safety Education include as follows:

① Safety and health education when having employed a new worker
② Safety and health education when having changed the content of work assigned to a worker
③ Special education (When assigning for the fixed dangerous and harmful jobs)
④ Safety and health education of foremen, etc. (Exclude operations chief) (Only the fixed jobs such as manufacturing, etc)

Matters for safety and health education when having employed a new worker (Ordinance, Article 35, Pargraph1)

① Matters related to danger or toxicity of machines, etc., or raw materials, etc., and matters related to methods of handling thereof
② Matters related to performance of safety devices, harmful substance control devices, or of personal protective equipment and matters related to methods of handling thereof
③ Matters related to operation procedures

④ Matters related to inspection at the time of commencement of work
⑤ Matters related to the causes and prevention of diseases of which workers are susceptible related to the work concerned
⑥ Matters related to housekeeping and maintenance of sanitary conditions
⑦ Matters related to emergency measures and evacuation at the time of an accident
⑧ In addition to what is listed in preceding each item, matters necessary for maintaining safety and health related to the said work

＊Special Education

As regard to educational matters and training time for special education, standards for each type of work are specified by the Minister of Health, Labor and Welfare.

It is allowed to omit the special education for workers who already have necessary knowledge and skills for maintaining safety and health related to the said works.

The employer who gave special education shall make a record pertaining to participants and subjects of the special education and preserve the records for three years.

(2) Education for safety and health to those who are currently engaged in dangerous or harmful work operations (Article 60-2)

In addition to safety and health education in the preceding (1), the employer shall endeavor to give education for safety and health to those who are currently engaged in dangerous or harmful work operations, concerning work operations engaged in by them.

(3) Restrictions on Engagement (Article 61)

The employer shall not place any person in the operation of cranes and other operations defined by Cabinet Order unless the person has obtained the license concerning the said operations from the Director of the Prefectural Labor Bureau, has finished the skill training course related to the said operations conducted by those who have been registered by the Director of the Prefectural Labor Bureau, or has other qualifications provided for by the Ordinance of the Ministry of Health, Labor and Welfare.

A person who engages in the said operations shall, at the time of the engagement in the said operations, carry with oneself the license concerning the said operations or other document to prove the qualification.

＜ Measures for maintaining and promoting workers' health＞

(1) Working environment measurement (Article 65 and Article 65-2)

The employer shall, as provided for by the Ordinance of the Ministry of Health, Labor and Welfare, conduct necessary working environment measurement in respect to the indoor and other workshops prescribed by Cabinet Order as harmful work operations are performed, and keep the record of the results.

＊An object to be measured and the number of measuring times are specified by the Ordinance on Industrial Safety and Health and each special provision.

・When the assessment of results of the working environment measurement under the provisions of paragraph (1) or (5) of the preceding Article indicates the necessity of measures for the maintenance of the health of workers, the employer shall take necessary measures such as providing the necessary facilities or equipment, medical examinations and other necessary measures for the maintenance of the health of workers in accordance with the Ordinance of the Ministry of Health, Labor and Welfare.

・The employer, who is to make the assessment set forth in the preceding paragraph, shall make the assessment in accordance with the working environment assessment standard by the Minister of Health, Labor and Welfare, as provided for by the Ordinance of the Ministry of Health, Labor and Welfare.

・When the employer has made the assessment of results of the working environment measurement according to the provision of the preceding paragraph, the employer shall keep the record concerning the results of the assessment in accordance with the

Ordinance of the Ministry of Health, Labor and Welfare.

＊the working environment assessment standard

First Segregated Management：The condition that the harmful article levels does not exceed management density at most of the said working places

Second Segregated Management：The condtion that the average of harmful article levels does not exceed management density at most of the said working places

Third Segregated Management：The condition that the average of harmful article levels is more than the management density

(2) Control of works (Article 65-3)

The employer shall endeavor to pay attention to the health of workers and properly control their works.

＊The employer shall control properly their work in terms of maintaining and promoting workers' health, such as proper continuous working time and work break, proper amount of work, and improvement of working attitude.

(3) Restriction of working hours (Article 65-4)

The employer who is to have the workers engage in the work operations likely to damage the workers' health, such as diving work, and provided for by the Ordinance of the Ministry of Health, Labor and Welfare, shall not have them work against the standard

concerning the working hours provided for by the Ordinance of the Ministry of Health, Labor and Welfare.

(4) Medical examination (Article 66)

Medical examination is important to discover adverse factors of workplace from worker's health condition and improve it with grasping health condition for each worker and practicing proper health management.

① Medical examination when having employed a new worker (Ordinance, Article 43)

The employer shall, when employing a worker as a regular employee, provide medical examination for all type of works and all size of employers.

＊"A worker as a regular employee" includes a person who has or has not a time period with labor contract and who is planning to work for more than one year.

In addition, part-time workers who work more than three fourths of the weekly working hours of ordinary workers employed at the same place of business include this.

It is desirable to provide medical examination for part-time workers who work more than one –half approximately even less than three fourths of the weekly working hours.

② Periodical Medical Examination (Ordinance, Article 44)

Object persons for periodical medical examination are workers as a regular employee same as the case of medical examination when having employed a new worker

＊If workers who have a time period with labor contract still work more than one year with renewing the contract, they need to take periodical medical examination.

③ Medical examination for those engaged in specified work (Ordinance, Article 45)

The employer shall provide worker who is transferred to the fixed harmful works, such as work to handle a large quantity of intensely heated material, work to receive an extreme vibration, etc. with a medical examination by a physician once every period within a year.

④ Medical examination on specified items for those engaged in harmful work (Article 66, Paragraph 2 and 3)

The employer shall provide worker who is engaged in the fixed harmful works, such as work in compressed air, etc with a medical examination on specified items by a physician when having employed, transferred, and regularly.

⑤ Measures for following-up the medical examination (Article 67-2 to 7)

i The employer shall hear medical doctor's advice about remarks and aftercare within 3 months after the day of the medical examination.

ii The employer shall take necessary measures, such as a change of workplace and work, cutting work hours, working environment measurement, establishment/maintenance of facilities/equipments and other measures with the advice above as necessary.

iii The employer shall endeavor to provide the worker who gets medical treatment as necessary with health guidance by a doctor, etc.

iv The employer shall submit a report of the results of a periodical medical examination on the form to the Chief of the competent Labor Standards Inspection Office.

(5) Prohibition of employment of the sick (Article 68)

The employer shall prohibit the placement to work for the workers who have contracted the fixed communicable diseases and other diseases.

＊The sick shall be prohibited to work

① A person who has contracted an infectious disease which is liable to communicate infectious agents to other person (such as SARS)

② A person who is suffering from such diseases as a heart disease, kidney disease or a lung disease which are anticipated to worsen the person's physical condition as a result of employment in work

＊Those engaged in specified work shall be prohibited to work

①The employer shall prohibit from working for the period deemed to be necessary by the medical doctor lead-and tetraalkyllead-poisoned workers who are diagnosed by the medical doctor as not being appropriate to be engaged in the work to sustain their health. (The Lead Ordinance Article 57 and Tetraalkyl Lead Poisoning Ordinance Article 26)

② The workers who are affected by the following disease are prohibited to work with high pressure for the period deemed necessary by a doctor. (The High Pressure Work Ordinance, Article 41)

i Decompression sickness or other damage or permanent damage from high pressure

ii Tuberculosis of lung, other tuberculosis of respiratory apparatus or acute upper respiratory infection, pneumoconiosis, emphysema, and other disease of respiratory apparatus

iii Anemia, cardiac valvular disease, coronary sclerosis, hyperpiesia and other blood or circulatory disease

iv Psychoneurotic disease, alcoholic intoxication, neuralgia, and other disease related to psychoneurotic

v Labyrinthine syndrome or tympanitis, other disease with tubal stenosis

vi Articular inflammation, rheumatism, and other locomotor apparatus disease

vii Asthma, fatness, Basedow disease, other allergy, disorder of endocrine system, disease related to substance metabolism or nourishment

(6) Health education, etc. (Article 69 and 70)

The employer shall make continuous and systematic efforts for the maintenance and promotion of workers' health by taking necessary measures such as providing health education, health counseling to the workers, convenience for sports, and recreation.

＜Measures to create a comfortable working environment＞

The employer shall endeavor to create a comfortable working environment in order to improve the level of safety and health in the workplace by taking continuous and systematic measures as follows: (Article 71-2)

(1) To manage the maintenance of a comfortable working environment

To manage the maintenance proper working condition, such as temperature or lighting intensity, etc.

(2) To improve work practices engaged in by workers

To give a consideration to allow ease of work as well as to properly display easy to see for equipment and business equipment, etc.

(3) To establish or maintain facilities or equipment to refresh workers' fatigue suffered in the course of their work

To ensure a break room which has facility to be able to lie down as to be able to heal for fatigue and stress effectively.

(4) To establish or maintain necessary facilities or equipment at a workplace

To make lavatory or changing room, etc. clean and easy to use all the time

＜ Inspection, etc.＞

“Inspection” is a checkup for workplace to discover a violation.

The inspection includes 3 types: ①periodic inspection, ②declared inspection (by whistle-blowing) ③ Re-inspection (after ①and②)

If the employer gets “correction recommendation” at periodic inspection, it is necessary to start to make an improvement the situation immediately.

”Re-inspection” is a bad situation with no response to the advice, such as correction recommendation, and lead to be sent to prosecutors for investigation.

(1) Notification of plans, etc. (Article 88)

The employer, when intends to construct, install, move, or alter the main structure of, machines, etc. which require the dangerous or harmful work, are used in dangerous places (boiler, equipment for drying), shall notify the plan to the head of relevant labor standards supervision office no later than 30 days prior to the date of commencement of the said work.

(2) Order of suspension of use, etc. (Article 98 and 99)

The Director of the Prefectural Labor Bureau or the Chief of the Labor Standards Office may, where there exists a fact in violation, order to stop whole or part of the work, to stop or alter the use of whole or part of the building, etc., or other matters necessary for preventing industrial accidents, to the employer.

(3) Training directive for the person engaged in work to prevent industrial accidents.

The Director of the Prefectural Labor Bureau may, in case that the industrial accident occurred and when he/she finds it necessary to prevent the recurrence of industrial accidents, instruct the general safety and health manager, etc. who involved in the said industrial accident to have, take a training course.

＜ Penal provisions＞

Penal provisions of violations are as follows:

(1)A person who violated the provisions of measures to be taken by employers (Article 119)

A person who comes under following items shall be punished with a penal servitude not exceeding six months, or with a fine not exceeding 500,000 yen:

① The employer who appointed an Operations Chief and did not have the said person direct the employees engaged in the said work and handle other matters

② The employer who used boiler which do not have an inspection certificate

③ People who used Class-2 pressure vessel which do not have a certification for individual inspection

④ The employer who did not provide special education for the safety and health related to the said work when assigning workers to dangerous or harmful work

(2) Violation to organization for safety and health management (Article 120)

A person who comes under the following items shall be punished with a fine not exceeding 500,000 yen:

① The employer who appointed a general safety and health manager and did not have the said person direct the work

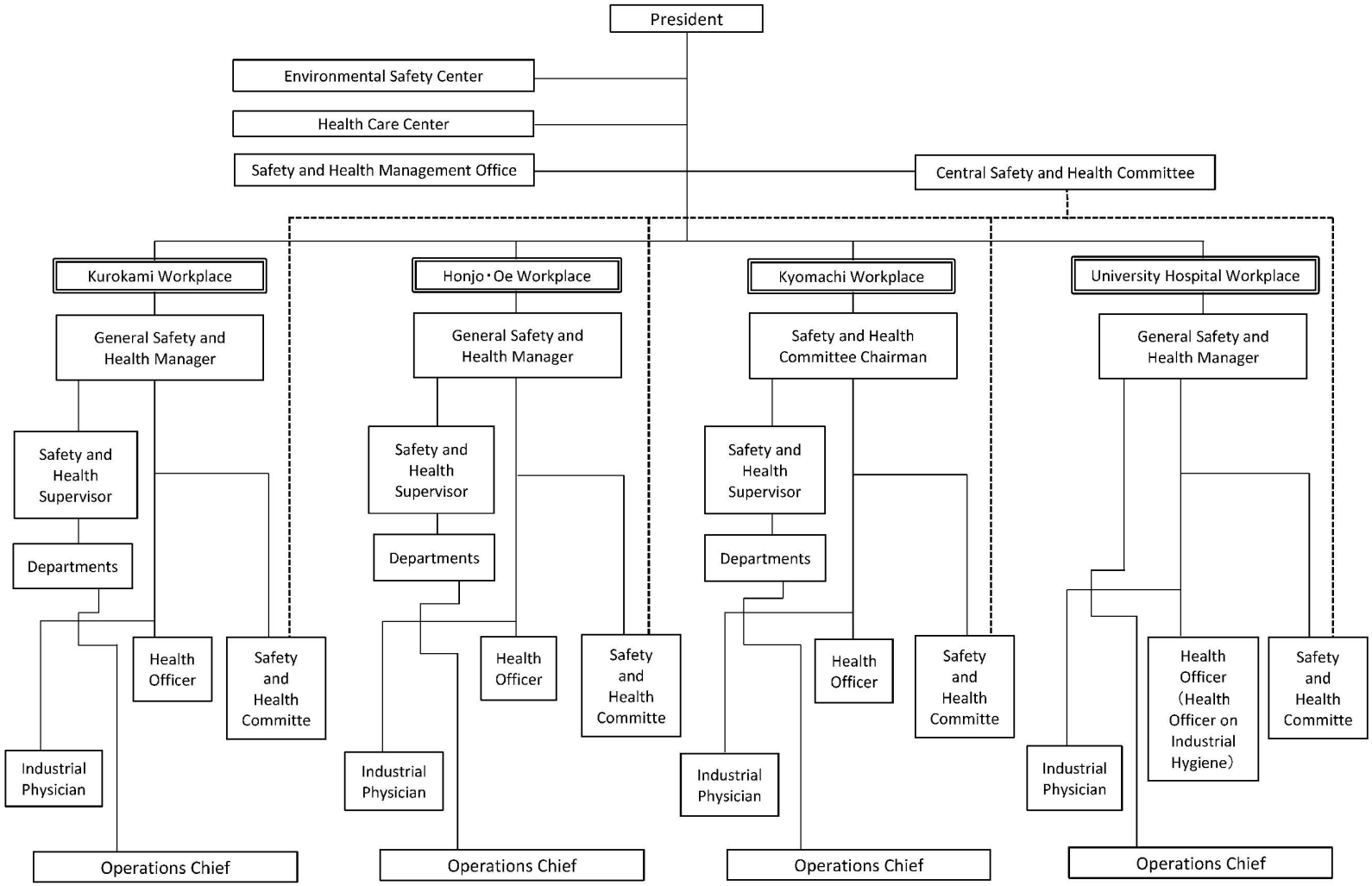
② The employer who did not establish the health committee

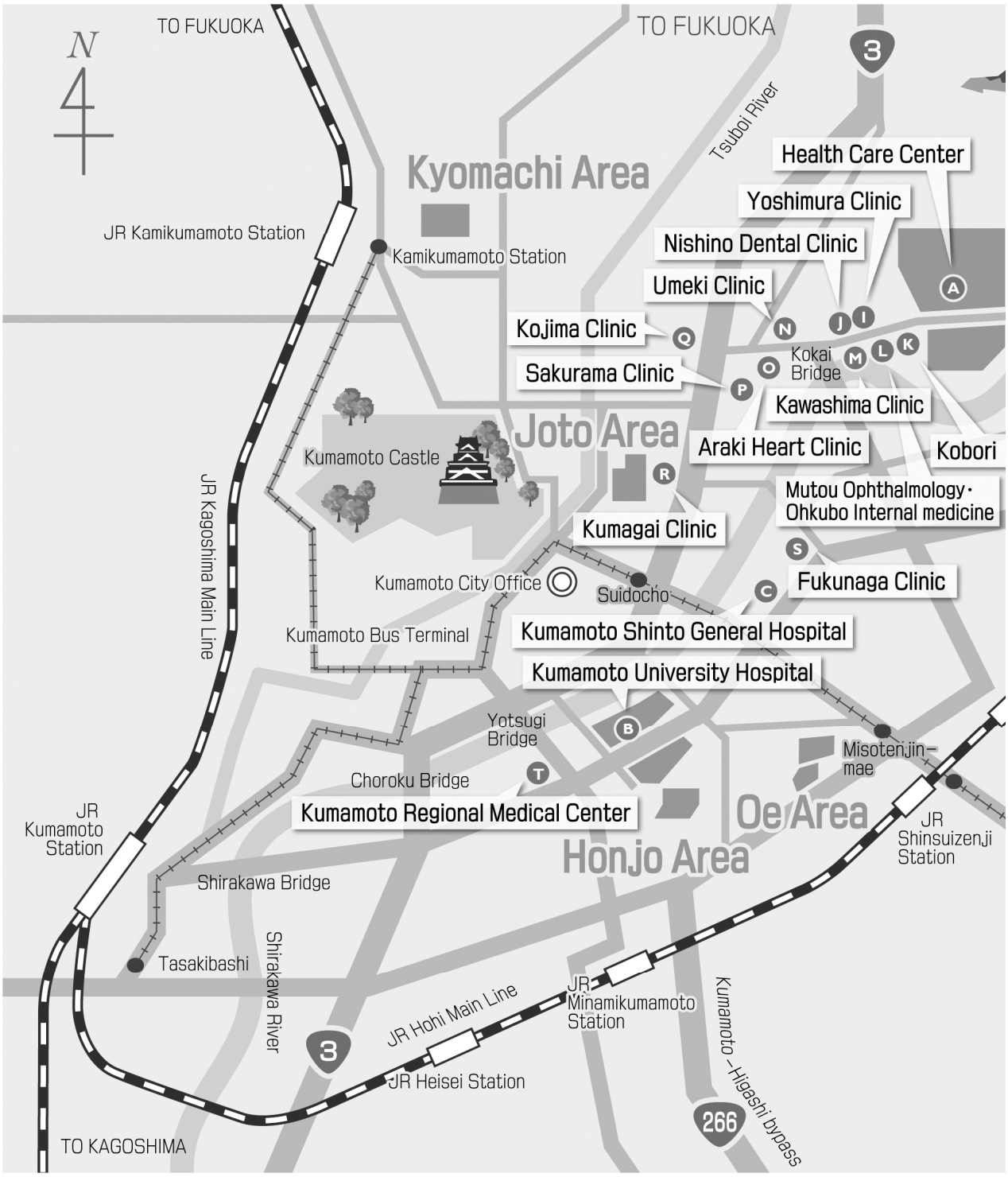
③ The employer who did not provide education for safety and health related to the works when having employed a new worker

④ People who used a crane without prescribed certification

Try to do thorough safety and health management always for the university without penal provisions.
We can achieve it for sure if each person prepares to do, retain a strong interest in the safety and health as well as do the following things: discover unsafe/unsanitary condition earlier, and avoid unsafe/unsanitary action.
Our goal is to establish health and safety workplace and learning environment, which to aim a university leading the world in 21th century.

Kumamoto University Safety and Health Management Organization

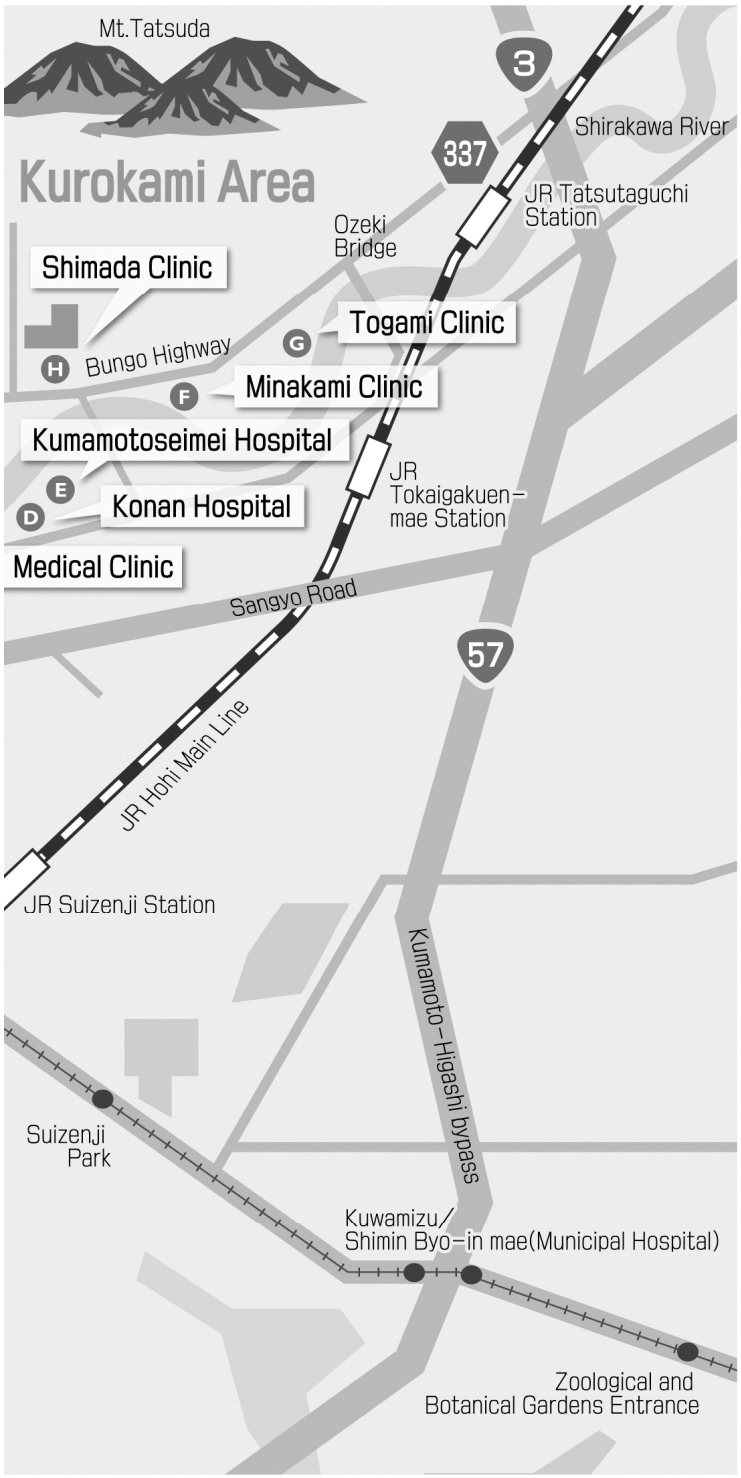




Hospitals around Kumamoto University

Caution

○There are many other hospitals around Kumamoto University.
○If you need an ambulance, dial “119”.
Add “0” in case of calling from campus, so dial “0119”
○There is “Holiday on-duty doctor information” on the website of Kumamoto City medical association.



CLINIC MAP

Ⓐ Health Care Center
☎342-2164

Ⓑ Kumamoto University Hospital 〈General〉
(Outside hours: **373-5996**) ☎344-2111

Ⓒ Kumamoto Shinto General Hospital 〈General〉
☎364-6000

Ⓓ Konan Hospital
〈Internal medicine, Surgery, Respiratory Medicine, Neurology,etc.〉
☎375-1112

Ⓔ Kumamotoseimei Hospital
〈Psychiatry, Neurology, Psychosomatic Medicine〉
☎366-2291

Ⓕ Minakami Clinic 〈Urology, Internal medicine,etc.〉
☎343-2913

Ⓖ Togami Clinic
〈Internal medicine,Gastroenterology, Surgery,etc.〉
☎345-8211

Ⓗ Shimada Clinic 〈Internal medicine,etc.〉
☎341-1360

Ⓘ Yoshimura Clinic
〈Internal medicine, Dermatology, Obstetrics and Gynaecology〉
☎345-8300

Ⓙ Nishino Dental Clinic 〈Dentistry〉
☎343-5952

Ⓚ Kobori Medical Clinic
〈Gastroenterology, Surgery, Internal medicine,etc.〉
☎344-1001

Ⓛ Mutou Ophthalmology・Ohkubo Internal medicine
〈Internal medicine,Ophthalmology,etc.〉
☎343-3510

Ⓜ Kawashima Clinic
〈Orthopedic surgery, Rehabilitation Medicine,etc.〉
☎345-2666

Ⓝ Umeki Clinic 〈Dermatology,etc.〉
☎343-8031

Ⓞ Araki Heart Clinic
〈Internal medicine,Cardiovascular medicine〉
☎346-0570

Ⓟ Sakurama Clinic
〈Neurosurgery,Neurology,Internal medicine,etc.〉
☎343-2511

Ⓠ Kojima Clinic 〈Ophthalmology,etc.〉
☎344-8858

Ⓡ Kumagai Clinic
〈Otorhinolaryngology,Bronchoesophagology,etc.〉
☎352-1521

Ⓢ Fukunaga Clinic
〈Allergy, Otorhinolaryngology,Bronchoesophagology〉
☎371-2101

Ⓣ Kumamoto Regional Medical Center
〈Internal medicine, Surgery, Pediatrics〉
(It is available on holiday and night-time.) ☎363-3311

Postscript

"Health and Safety Manual" is counted as the beginning of "Safety manual". Then, the health part was added with the influence of being transformed into the incorporated national university in 2006, and this manual becomes the current version.

Kumamoto University was subject to the Industrial Safety and Health Act after turning incorporated in 2004 and established safety and health management system. There are four workplaces, which have safety and health committees in the university. In addition, Central Safety and Health Committee was established to deliberate on safety and health for the university. A chief of Health Center and a chief of Environmental Safety Center work in Central Safety and Health Committee as a commissioner.

This "Health and Safety Manual "is provided for freshman, new graduate students, and new teaching staffs. Therefore, the contents include basic parts related to health and safety and techniques in handling accidents. Please learn the special parts related to health and safety from departments or teaching staff. This manual is used for a lecture the general education "Basic" for freshman. That is the reason for "Key questions style" to enhance an effect of education. Please read the part carefully if you have any sections you do not know in the contents.

In addition, we do a questionnaire at the general education "Basic" and make this manual enhance the utility value.

Thank you very much for your corporations.

Our sincere hope is that everyone can work/study healthy and safety and do fulfilling education/research/medical/work activities in the university.

In March, 2014

Health Care Center Hirofumi Soejima
Environmental Safety Center Yoshihiro Yamaguchi

Acknowledgment

We would like to appreciate that writing and editing are based on the following references: Homepage of Kumamoto City, Homepage of Kumamoto Prefecture, Ministry of Health, Labor and Welfare's home page, "Duties of Industrial Physician Q&A" supervised by Occupational health department of the Ministry, the document of Industrial Physician Workshop in 2003 at Tokyo Medical and Dental University approved by Japan Medical Association, Homepage of Health and Medicine of Alcohol Association, Homepage of Kumamoto DARC.

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Police	Fire/ Emergency	Marine incident
Dial 110	**Dial 119**	**Dial 118**

＊ Add “0” in case of calling from campus.
Police 0110　Fire/ Emergency 0119

Emergency Contact number on campus
Kurokami Campus: Kurokami North Campus Gate Guard **096-342-3272**
Honjo / Oe Campus: Disaster Prevention Center **096-373-5917**

Contact number; undergraduate students	
Faculty of Letters	Academic Affairs Section of Faculty of Letters 096-342-2317
Faculty of Education	Academic Affairs Section of Faculty of Education 096-342-2522
Faculty of Laws	Academic Affairs Section of Faculty of Law 096-342-2318
Faculty of Science	Academic Affairs Section of Faculty of Science 096-342-3321
School of Medicine	Student Affairs Section, School of Medicine 096-373-5025
School of Health Science	Academic Affairs Section of Health Sciences 096-373-5571
School of Pharmacy	Academic Affairs Section of Pharmaceutical Sciences 096-371-4635
Faculty of Engineering	Academic Affairs Section of Faculty of Engineering 096-342-3522

Contact number; graduate students	
Graduate School of Education	Academic Affairs Section of Faculty of Education 096-342-2522
Graduate School of Social and Cultural Sciences	Academic Affairs Section of Graduate School of Social and Cultural Sciences 096-342-2325
Faculty of Life Sciences	Academic Affairs Section of GSST 096-342-3013
Graduate of Medical Sciences	Student Affairs Section, School of Medicine 096-373-5025
Graduate School of Health Sciences	Academic Affairs Section of Health Sciences 096-373-5571
Graduate School of Pharmaceutical Sciences	Academic Affairs Section of Pharmaceutical Sciences 096-371-4635
School of Law	Academic Affairs Section of School of Law 096-342-2322

OR

Academic Life Support Section, Academic Affairs Division,
Student Affairs Office : **096-342-2124**

We will support to solve your various problems, worries, medical problem during campus life.
Health Care Center: **096-342-2164** (Extension:**2164**)

Kumamoto University

General Information : **096-344-2111**(Main)