

東京大学理学部

Radiation Safety Course, School of Science, University of Tokyo

放射線取扱者講習会 (一般講習会)

放射線障害予防規程

Radiation hazard prevention regulations

放射線取扱者の手続き

Procedures required as a radiation worker

2021年度 前期

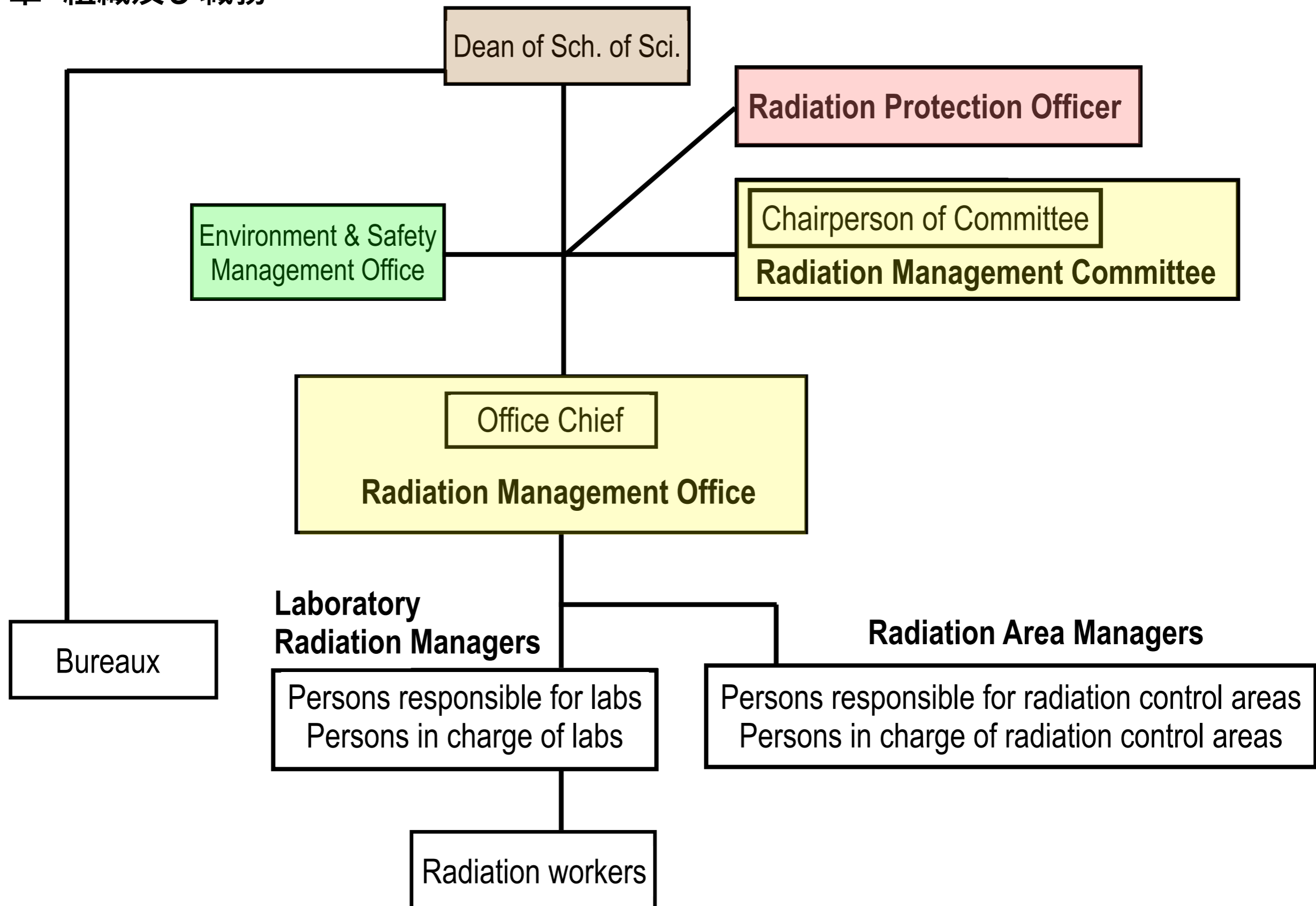
Spring 2021

放射線管理の法令

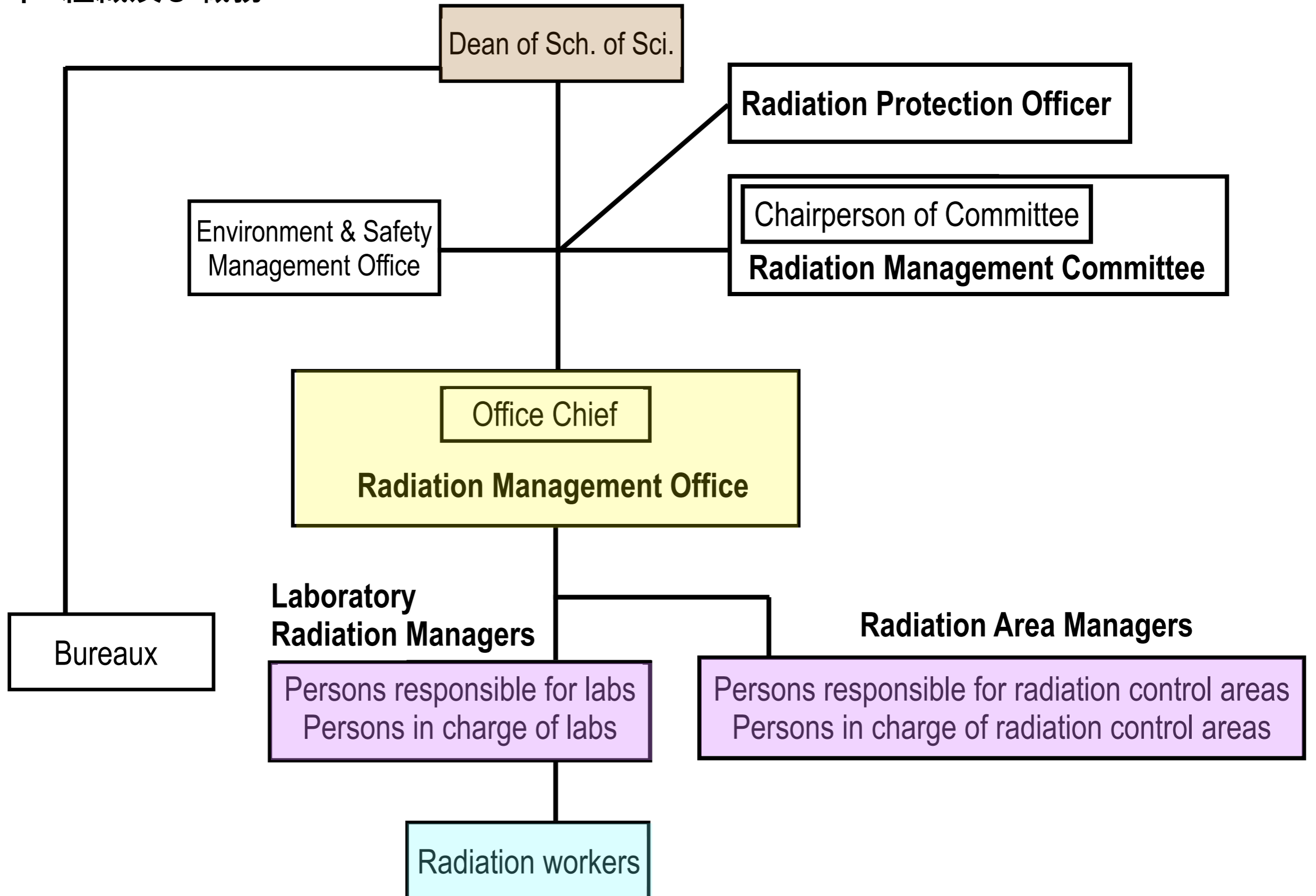
Japanese Laws for radiation protection

- RI (radioisotopes) · α · β · γ · protons · neutrons · heavy ions
& Over-1 MeV electrons · X-rays
 - 放射性同位元素等による放射線**障害の防止**に関する**法律**
Act on Prevention of Radiation Hazards due to Radioisotopes etc.
／同施行令／同施行規則
- X-rays
 - **電離放射線障害防止規則**
Regulation on Prevention of Ionizing Radiation Hazards
☞ 労働安全衛生法／同施行令
- Nuclear fuel materials etc. 核原料物質、核燃料物質
 - 核原料物質、核燃料物質及び原子炉の規制に関する法律／同施行令
- Medicals 医療および医薬品
 - 医療法施行規則 ☞ 医療法・同施行令

第3章 組織及び職務

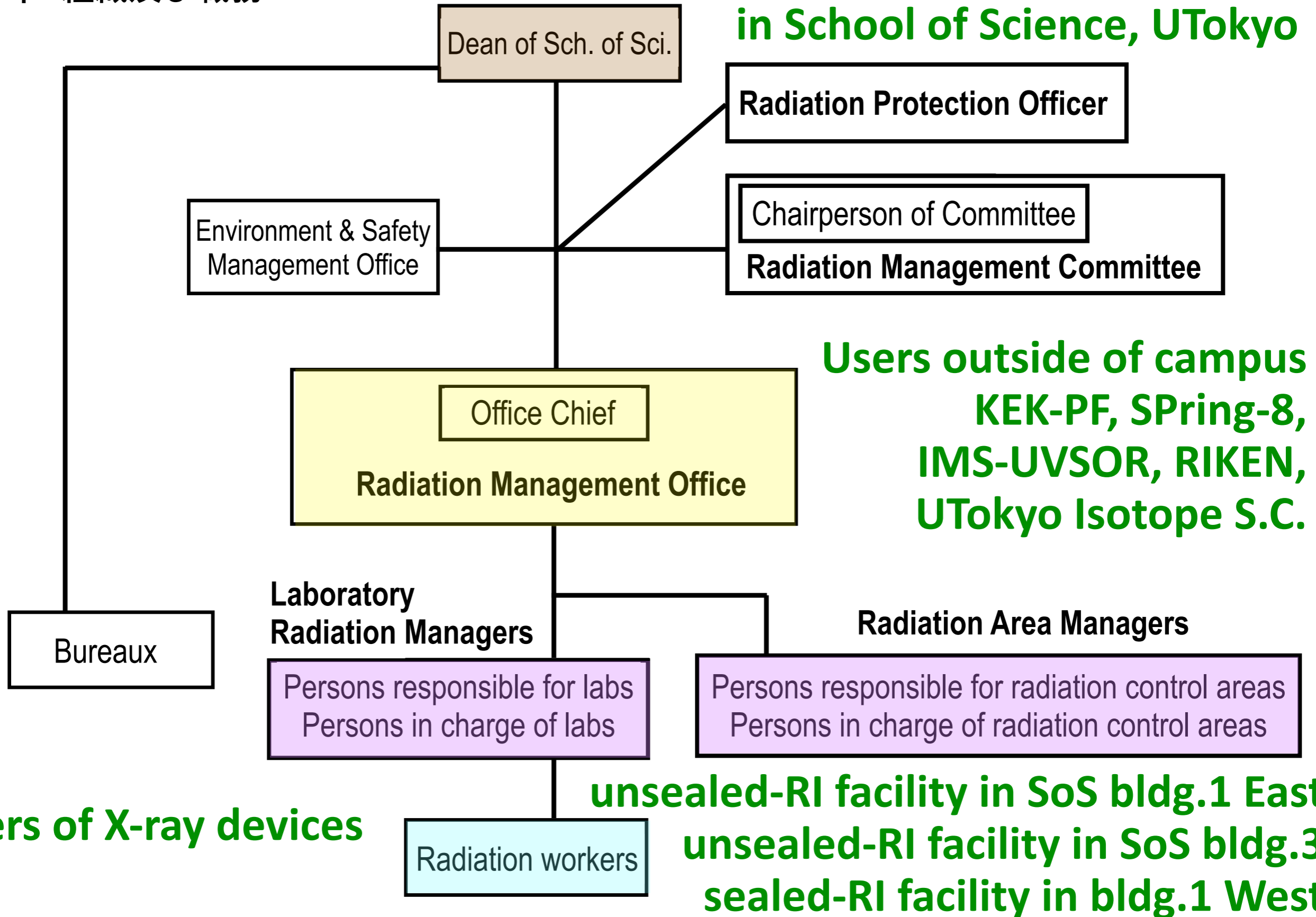


第3章 組織及び職務



第3章 組織及び職務

Total over 500 radiation users in School of Science, UTokyo



Users outside of campus
KEK-PF, SPring-8,
IMS-UVSOR, RIKEN,
UTokyo Isotope S.C.

Users of X-ray devices

unsealed-RI facility in SoS bldg.1 East
unsealed-RI facility in SoS bldg.3
sealed-RI facility in bldg.1 West

Article 17 (Persons responsible for labs & persons in charge of labs)

Article 18 (Their duties) **Laboratory Radiation Managers**

Article 20 (Persons responsible for radiation control areas)

Article 23 (Periodic checkout) **Radiation Area Managers**

Article 19 (Radiation workers)

Article 23 (Rules on radiation control areas)

Chapter 9: Article 40 (Education and training)

Chapter 10: Article 41 & 42 (Health management)

Chapter 13: Article 47 (Provision of information)

Article 28 (Use of radioisotopes)

Article 29 (Handling of unsealed radioisotopes)



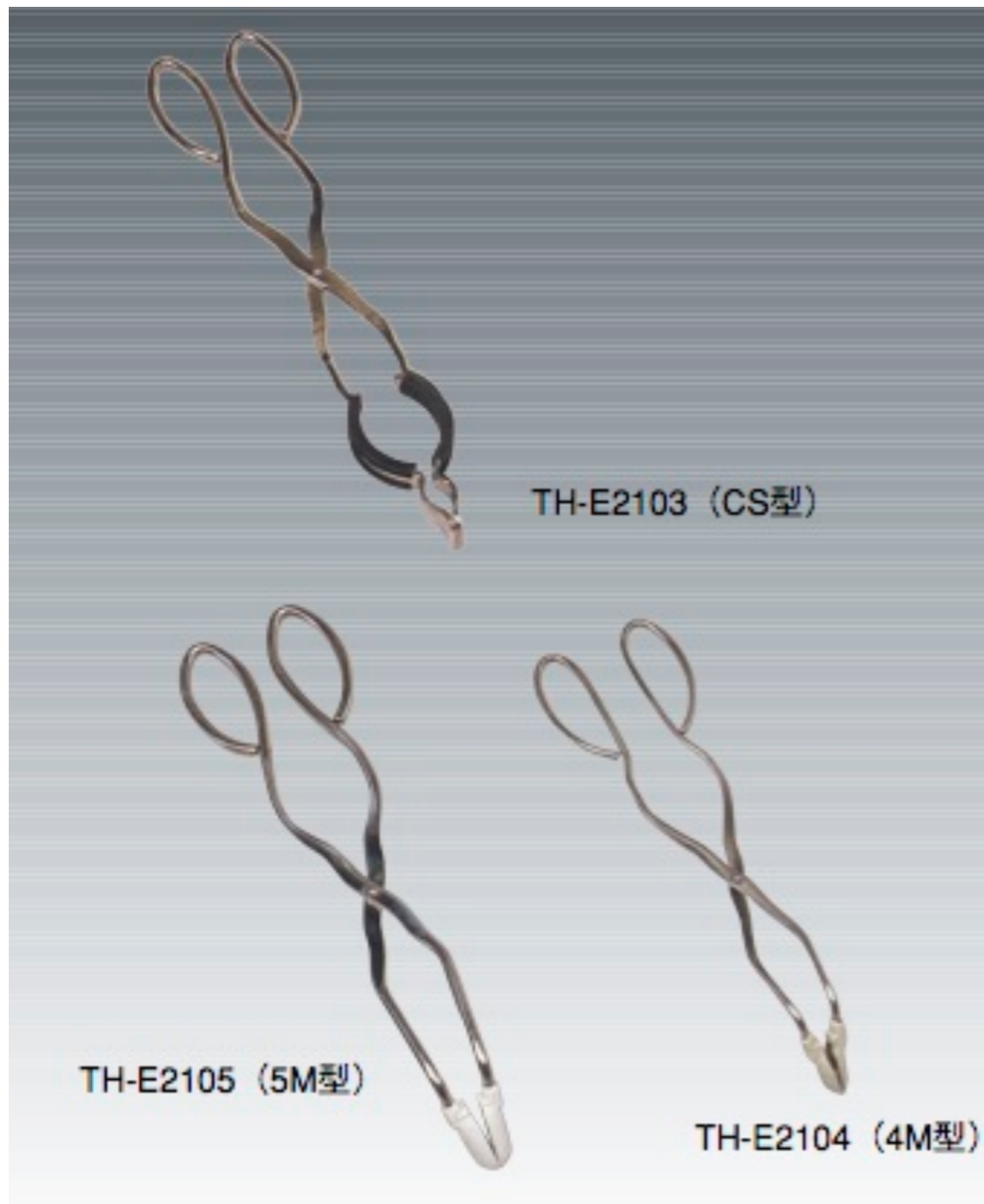
汚染の可能性のあるフード内や実験台をポリエチレン紙で覆う。

バット（受け皿）やトレイ内で取扱う。

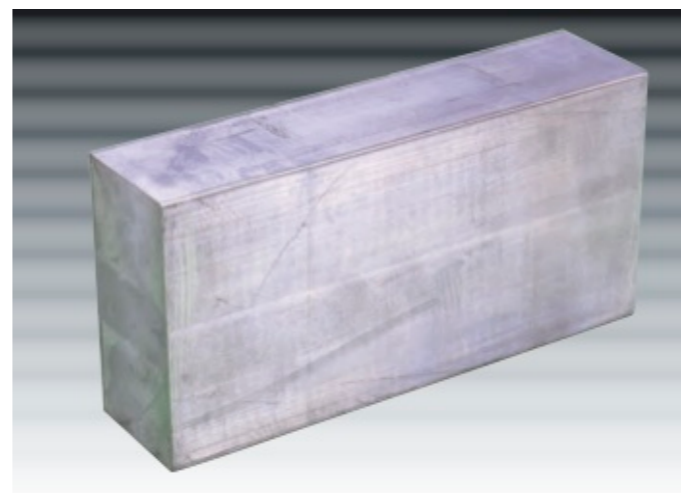
廃棄物の種類ごとに容器を用意。

核種にあった適切な遮へい器具を使う。

Article 30 (Handling of sealed radioactive sources)



lead brick



lead apron

ピンセット、 tong などを使い、R I からの距離を取る。
適切な遮へい材を活用し、放射線をさえぎる。

Handling of Luminess badge Dosimeter

- Wear the badge of the appropriate type.

SG type : X, γ and β rays

KG type : X, γ and β rays, neutrons



Position to wear the badge : At the chest for males

At the abdomen for females

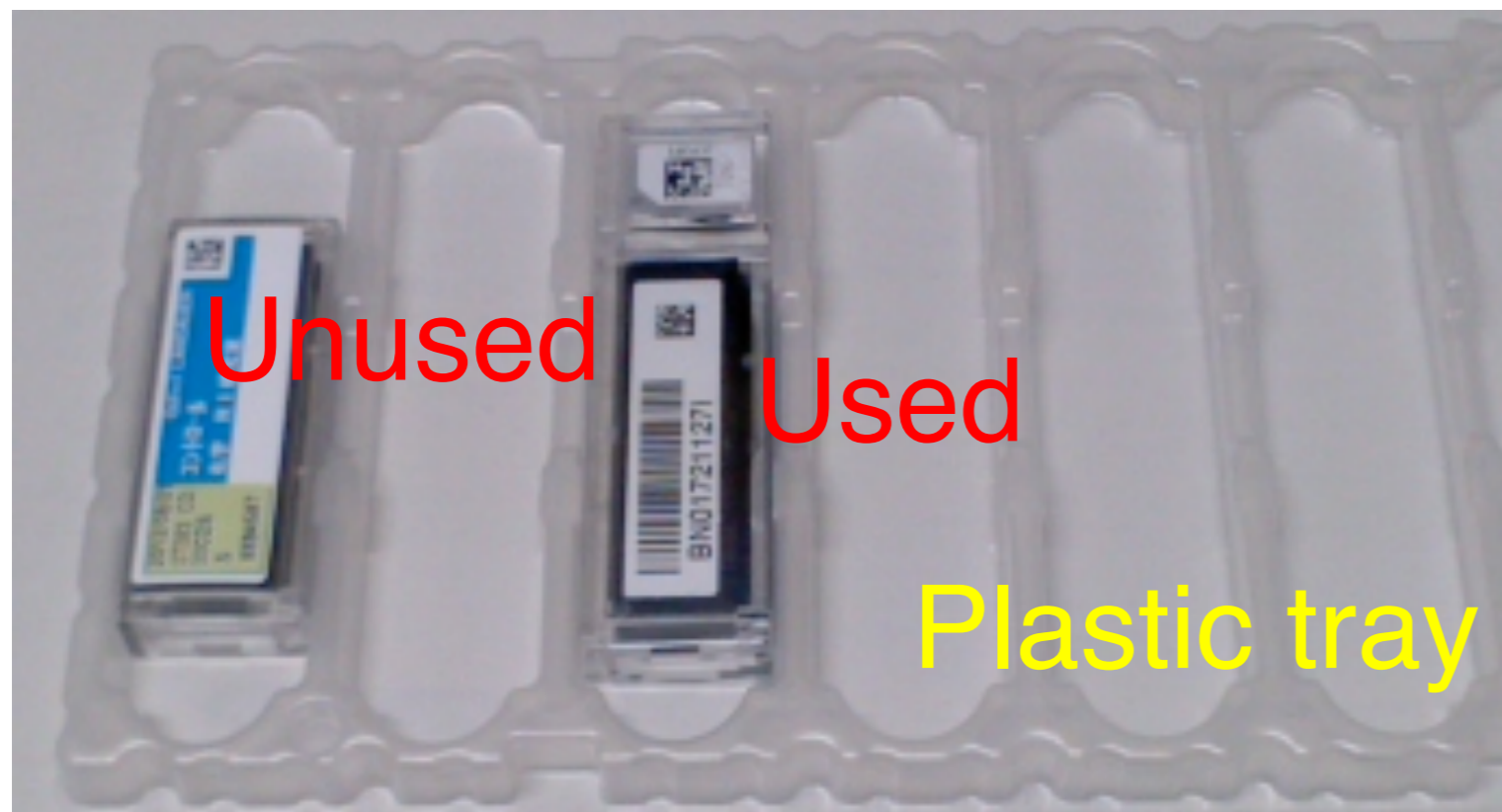
- Make sure to wear the badge to enter radiation controlled area in research institutes in Japan.

→ In order to manage the total personal exposure dose.

- When using airplane, be careful not to pass through the badge to X-ray baggage inspection at airports.

Handling of Luminess badge Dosimeter

- ◆ At the time of monthly badge exchange, return the badge of the previous month to the person in charge in your lab, and receive the new one.



Clearly distinguish between used / unused badges. Submit unused badges as well.

- ◆ You will always receive measurement result of the badge from the person in charge in your lab.

Important check list for prevention of accidents

To prevent loss or theft of radioisotopes (RIs)

- Check the number and location of RIs after use (by eye and/or measurement).
- Make records of usage and storage, and check the real items regularly.
- Make sure about appropriate management of keys for the storage boxes etc.

To minimize exposure and contamination

- Check contamination of your working area.
- Assume that whatever unlikely accident can happen. Think about all risks.
- Use survey-meters to check possible contamination of garbages to be transferred out of the radiation control area.
- Keep the hazard-prevention manual updated, inform your lab members for thorough understanding of the content.
- Frequent and steady communication with your lab staff members is essential.

Regulation on Prevention of Radiation Hazards

School of Science, University of Tokyo

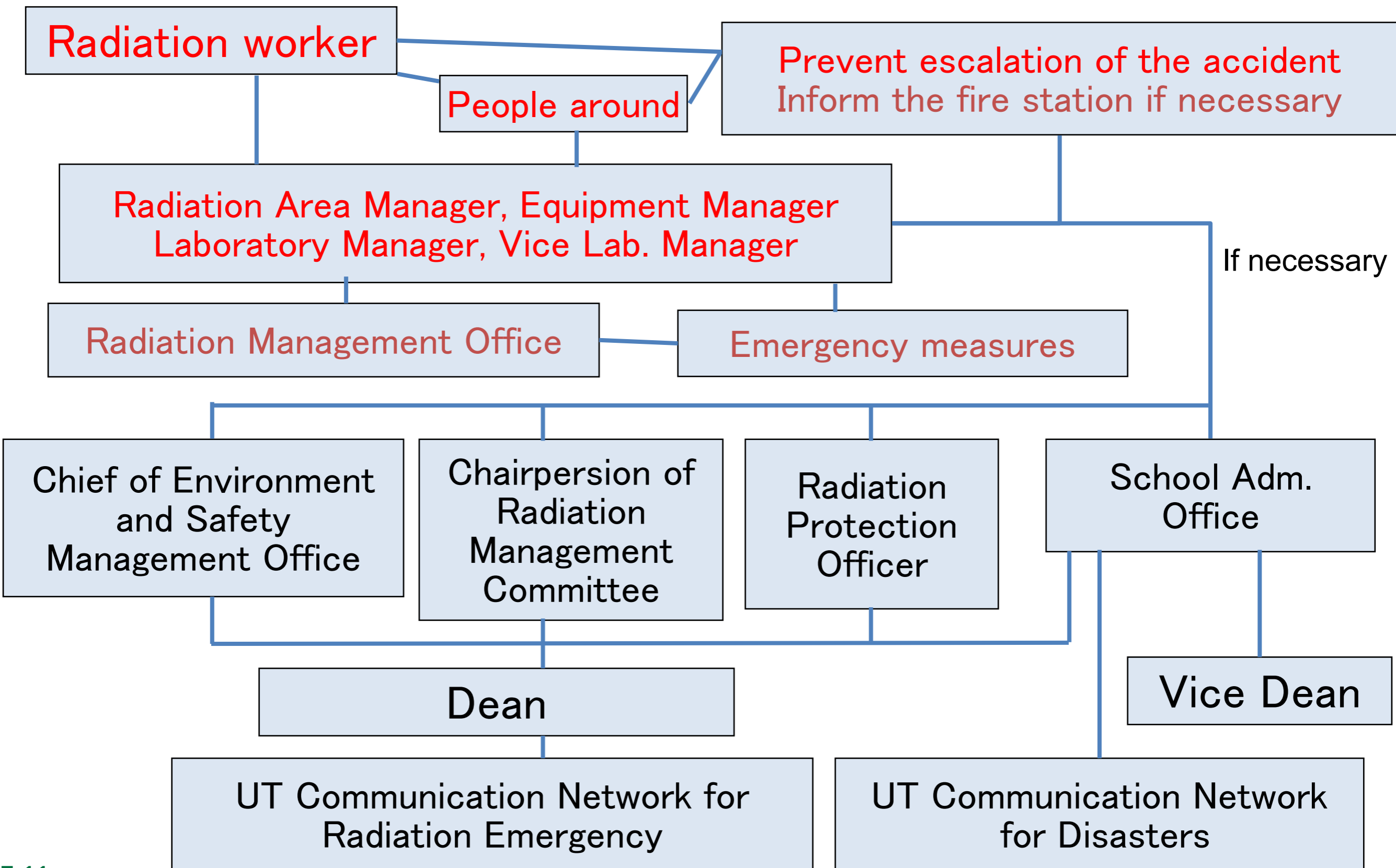
Article 45 (Measures in case of disasters)

Article 46 (Measures in case of danger)

**Instruction of measures to be taken
in case of radiation emergency**

School of Science

RI facility Emergency contact network



Classification of authorization categories of radiation workers at UTokyo

Category : UTokyo radiation training course

RI & Accelerators : RIX course

unsealed or sealed radioisotopes (RIs), accelerators, synchrotron radiation (SR), nuclear reactors

X-CDE : X-ray course

X-ray devices cat. C, D & E, Special-type electron microscope, X-ray device managers responsible

X-AB : X-ray course

X-ray cat. A & B (normal users)

新規放射線取扱者に関する手続き

Procedures required before being authorized to use radioisotopes / radiation facilities

* 放射線取扱者登録管理システム (UTRadMS) にて各自で手続きが必要

* individual application / reservation on UTRadMS system

* 登録申請

* Application for registration

* 健康診断

* Medical check for radiation workers

(X-AB を除く)

(except for X-AB users)

Submission of health check questionnaire

twice a year for continuation

継続：年2回問診票

* 全学一括講習会

* UTokyo training course

(認定科目履修者は免除)

RIX course = 1 full day / X-ray course = half day

理学部講習会

School of Science training course

(本日の講習会) 毎年再教育 (X-AB を除く)

(today's course)

Mandatory annual attendance (except for X-AB users)

認可申請

Application for authorization

バッジ交付 (X-AB を除く)

Distribution of badge dosimeter (except X-AB)

装置使用許可 (X線装置のみ)

Permission to use X-ray devices (only for X-rays)

各研究室の放射線担当教員を

Consult the staff in charge

通じて手続きすること。

for radiation-related matter in your laboratory.

新規放射線取扱者に関する手続き

Procedures required before being authorized to use radioisotopes / radiation facilities

* 放射線取扱者登録管理システム (UTRadMS) にて各自で手続きが必要

* individual application / reservation on UTRadMS system

* 健康診断

(X-AB を除く)

継続：年2回問診票

* Medical check for radiation workers

(except for X-AB users)

Submission of health check questionnaire twice a year for continuation

Scheduled medical check

Friday May 14 in Hongo campus

Friday June 4 in Kashiwa campus

Reservation on UTRadMS system required at latest 3 days in advance.

You should answer the questionnaire before the medical check.

■ Flow Sheet for Radioisotope and Radiation Generating Equipment Users

(Accelerators, SOR = Synchrotron Radiation Facilities, Nuclear Reactors etc.)

Accelerators, SOR (SR), Nuclear Reactors

Radiation Safety Manual
(April 2021)
to be downloaded

Application for registration

Application for registration as a radiation worker
by logging in to UTRadMS and proceed with the procedure

Health examination including blood test
(First of all, answer the inquiry on UTRadMS. Reservation is required at latest 3 days before the examination on the website of UTokyo Health Service Center.)

Medical check

UTokyo Training Course
on UTRadMS (E-learning).
Take a "RIX Training Course."
Currently only RIX Training Course is available.
Exemption rules exist.

UTokyo training course

Departmental Course
in School of Science

SoS training course

Application to Radiation Management Office for authorization
by persons in charge of labs
After the completion of the requirements, inform the person in charge of your lab.

Application for authorization

Authorization as a radiation worker
at Radiation Management Office

Authorization

Issue of a Luminess badge dosimeter
from School Administrative Office

badge dosimeter

You can start radiation handling.

■ Flow Sheet for X-ray Equipment (Categories C, D and E) Users

X-CDE users

Application for registration as a radiation worker
by logging in to UTRadMS and proceed with the procedure

Application for registration

Health examination including blood test
(First of all, answer the inquiry on UTRadMS. Reservation is required at latest 3 days before the examination on the website of UTokyo Health Service Center.)

Medical check

UTokyo Training Course
On UTRadMS (E-learning).
Take a "RIX Training Course."
Currently only RIX Training Course is available.
Exemption rules exist.

UTokyo training course

Departmental Course
Take a general course (which include explanations for X-ray usage) in School of Science.

SoS training course

Application to Radiation Management Office for authorization
by persons in charge of labs
After the completion of the requirements, inform the person in charge of your lab.

Application for authorization

Authorization as a radiation worker
at Radiation Management Office

Authorization

Issue of a Luminess badge dosimeter
from School Administrative Office

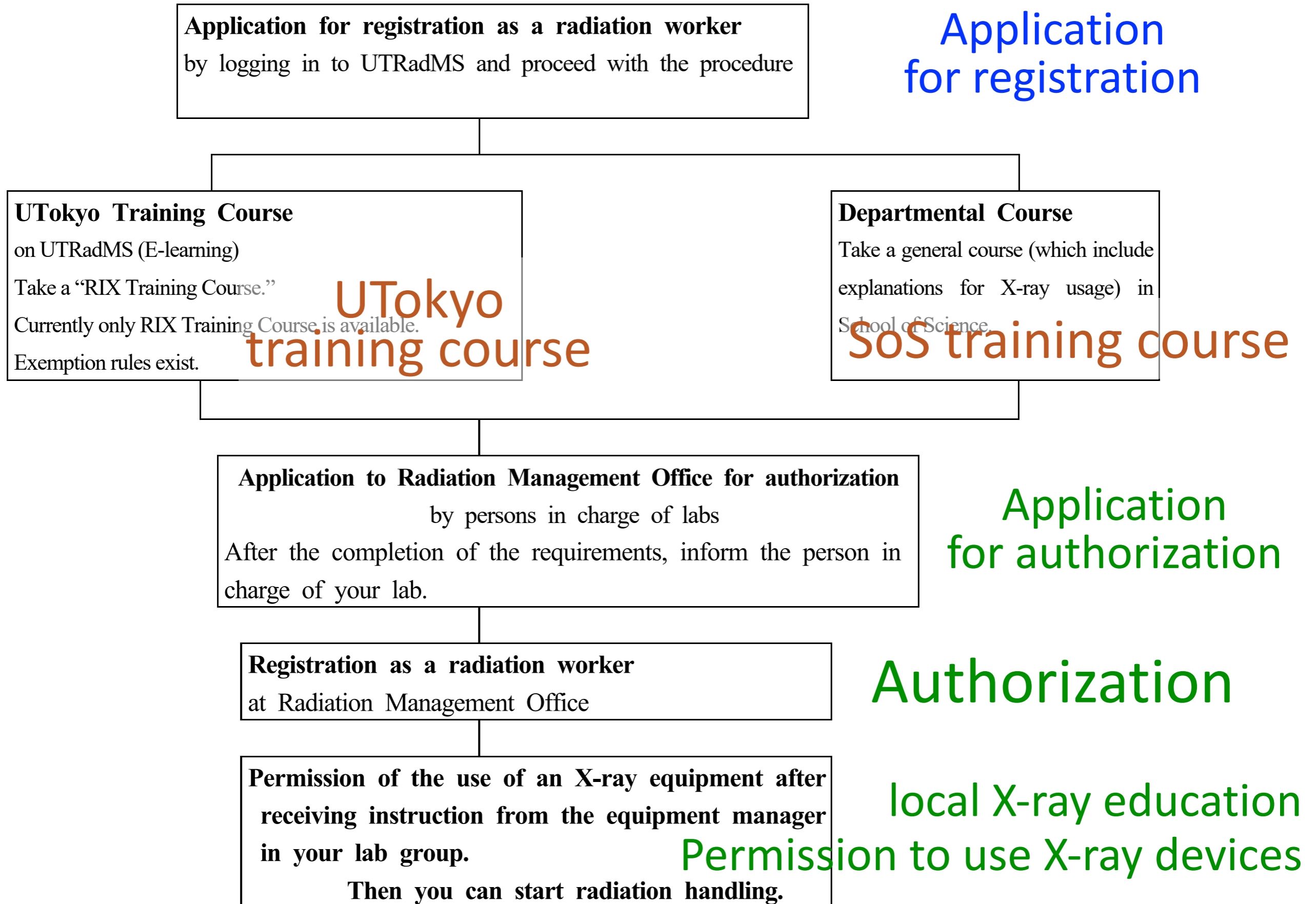
badge dosimeter

Permission of the use of an X-ray equipment
after receiving instruction from the equipment manager in your lab group.
Then you can start radiation handling.

local X-ray education
Permission to use X-ray devices

■ Flow Sheet for X-ray Equipment (Categories A and B) Users

X-AB users



Quiz #1

There are three categories of radiation workers at School of Science, the University of Tokyo :

“RI & Accelerators”, **“X-CDE”** and **“X-AB”**.

One of these categories do not require medical check for authorization as a radiation worker.

Answer which category.

Quiz #1

There are three categories of radiation workers at School of Science, the University of Tokyo :

“RI & Accelerators”, “X-CDE” and “X-AB”.

One of these categories do not require medical check for authorization as a radiation worker.

Answer which category.

Answer : “X-AB”.

Management of radiation workers

Check for qualifications of radiation workers

- ◆ Check for the qualifications of radiation workers every fiscal year. (Renewal of authorization.)
- ◆ If the following conditions are not met, your qualification as a radiation worker will be discontinued. (You will no longer be authorized.) (except for users of X-AB only.)

1. You have attended the **department course** in the relevant year.
2. You have undergone health check by submitting the radiation worker **health check questionnaire online** on the UTRadMS system in the relevant year.

School of Science **Contact list** of radiation-related matters

Contacts (April 2021)

| | |
|---|--|
| Application for registration of radiation workers Change of registration of radiation workers Application for UTokyo training courses Answer to inquiries before the health examination for new registrants Answer to inquiries at periodic health examinations | UTRadMS Proceed with the procedure by yourself |
| Health examination for new registrants (Need to make a reservation at latest 3 days before the examination) | UTokyo Health Service Center http://www.hc.u-tokyo.ac.jp/checkups/ radio-isotope-use-medical-screening/ |
| Distribution and recovery of Luminess badge dosimeters | School Administrative Office TEL <input type="text"/> ext. <input type="text"/> 24030 |
| Application for authorization as radiation workers, Issue of certificates, Documents for accelerator and SOR facilities Purchase, transfer, transportation, and disposal of radioisotopes Installation and change of radiation facilities Registration of X-ray equipment and electron microscopes Report of the result of tests of X-ray equipment and electron microscopes Unusual radiation incidents, accidents, and problems | Radiation Management Office |

Radiation Management Office, School of Science, the University of Tokyo

locality in Room B283, School of Science Bldg. 1 East, B2F

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