

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

2020年度 後期

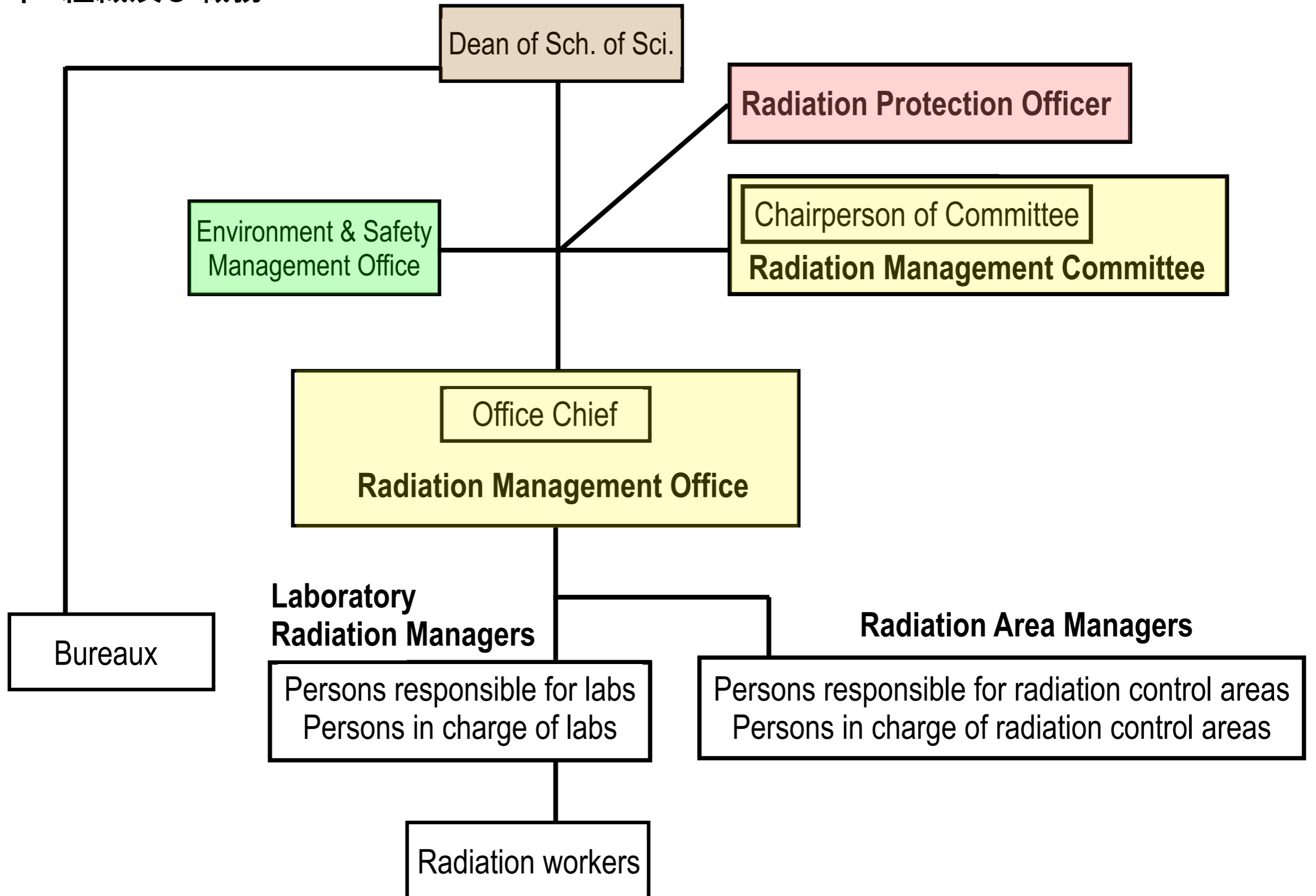
Autumn 2020

放射線管理の法令

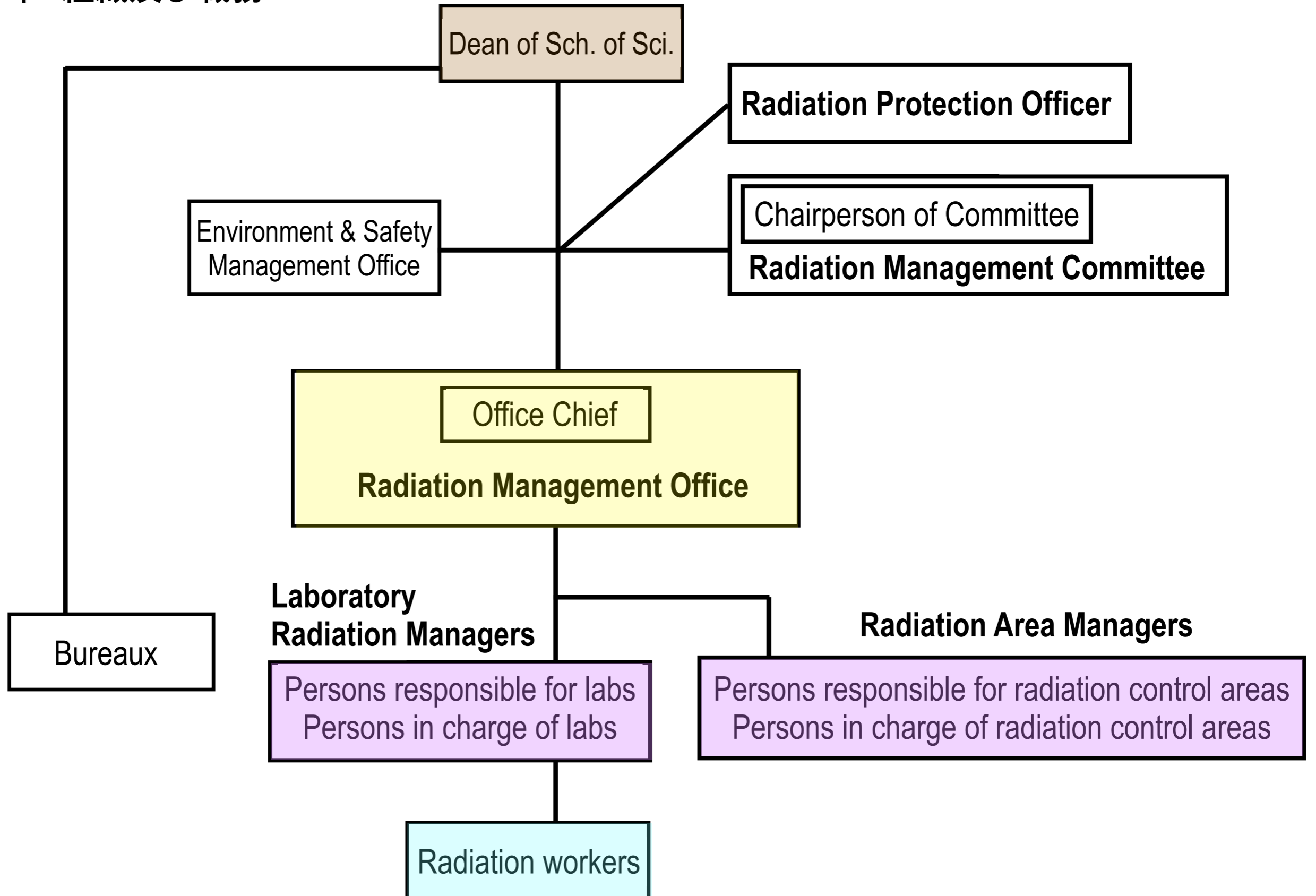
Japanese Laws for radiation protection

- 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



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)



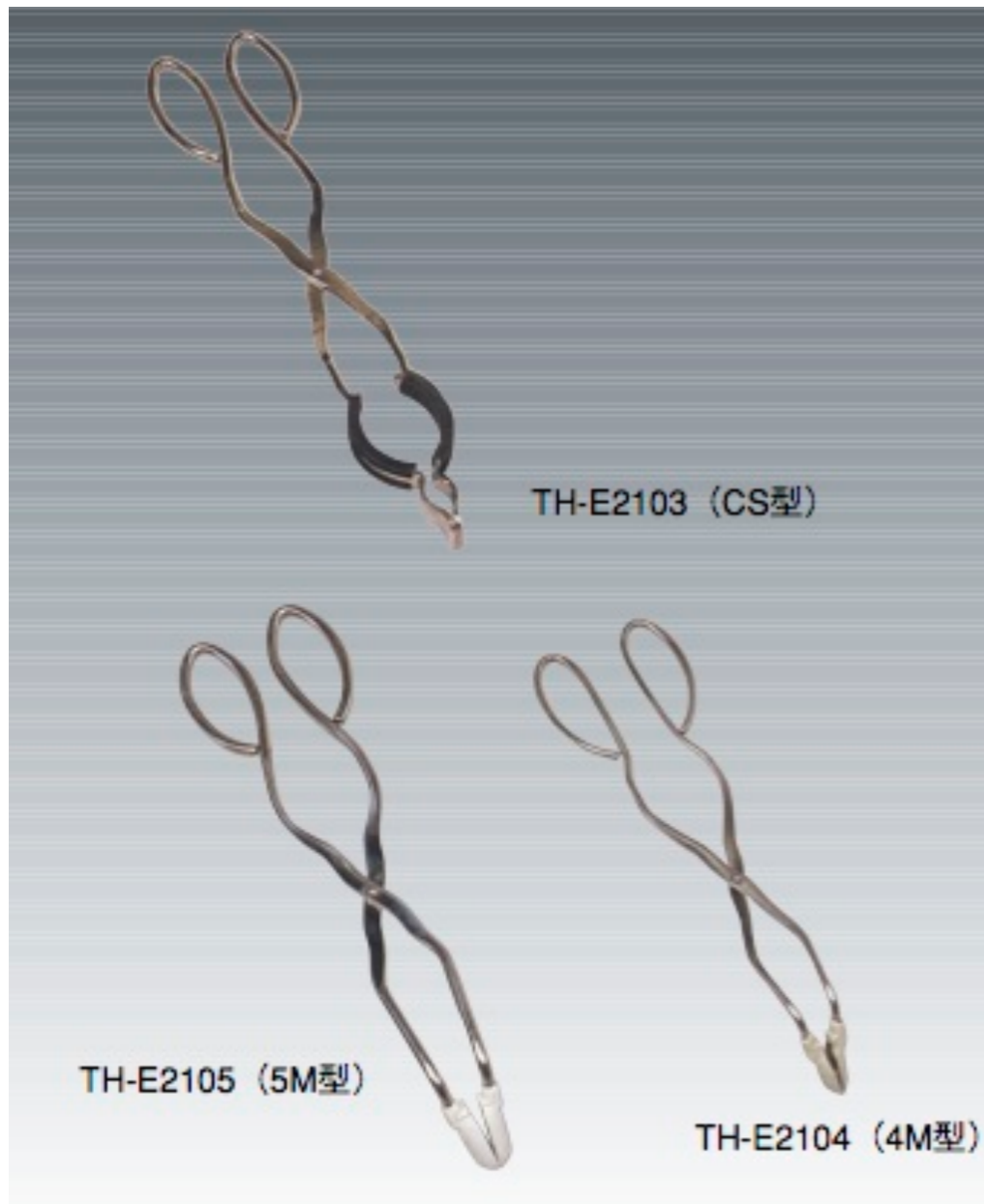
汚染の可能性のあるフード内や実験台をポリエチレン紙で覆う。

バット（受け皿）やトレイ内で取扱う。

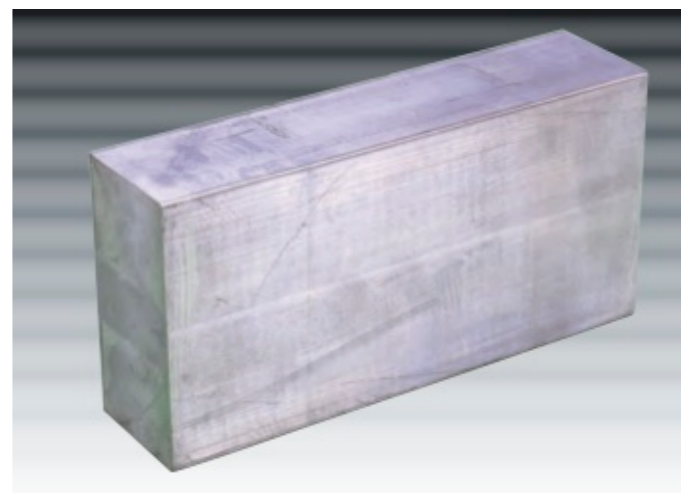
廃棄物の種類ごとに容器を用意。

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、RI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

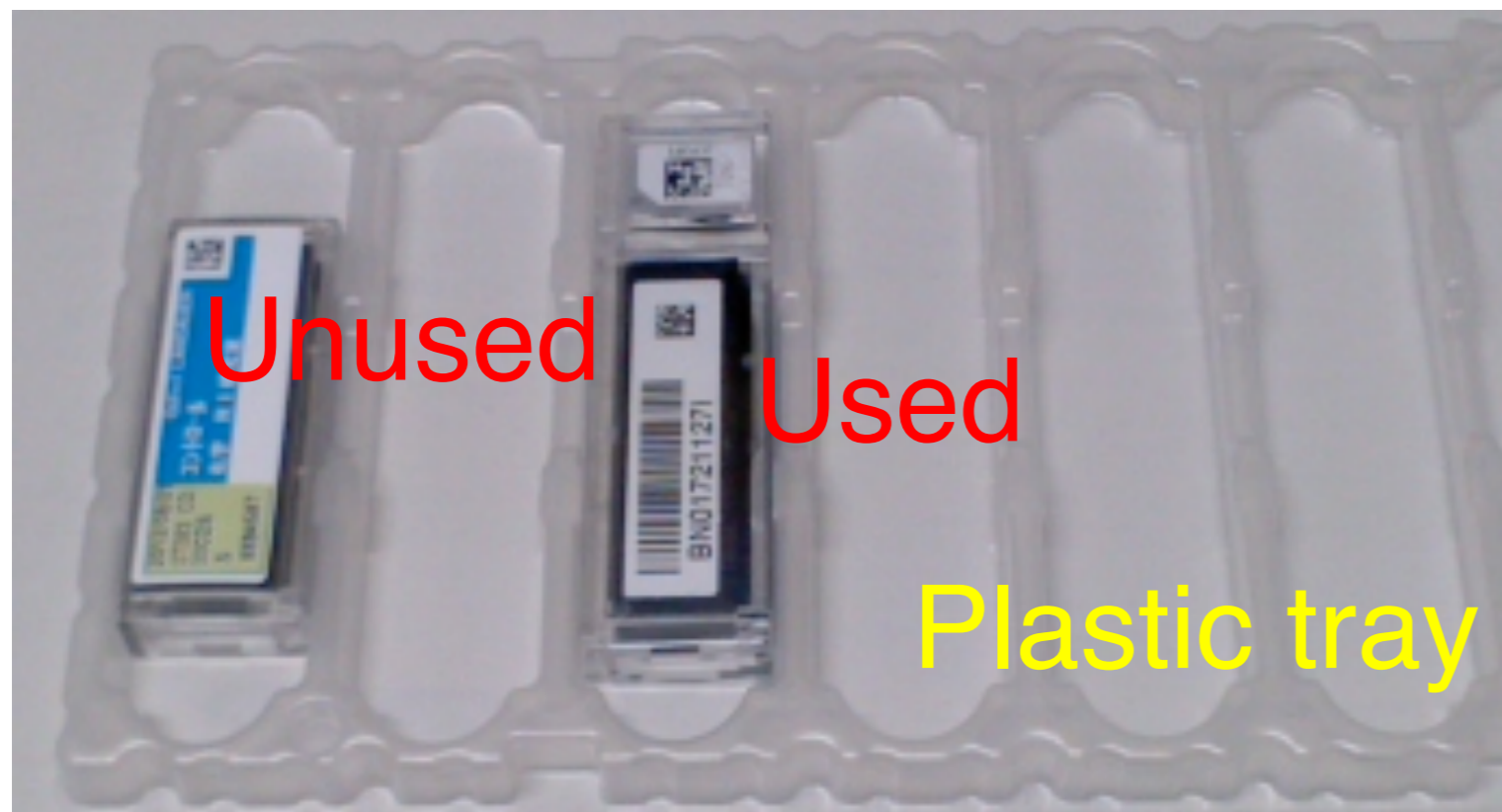
- Make sure to wear the badge to enter radiation controlled area in research institutes in Japan.

→ 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 of 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

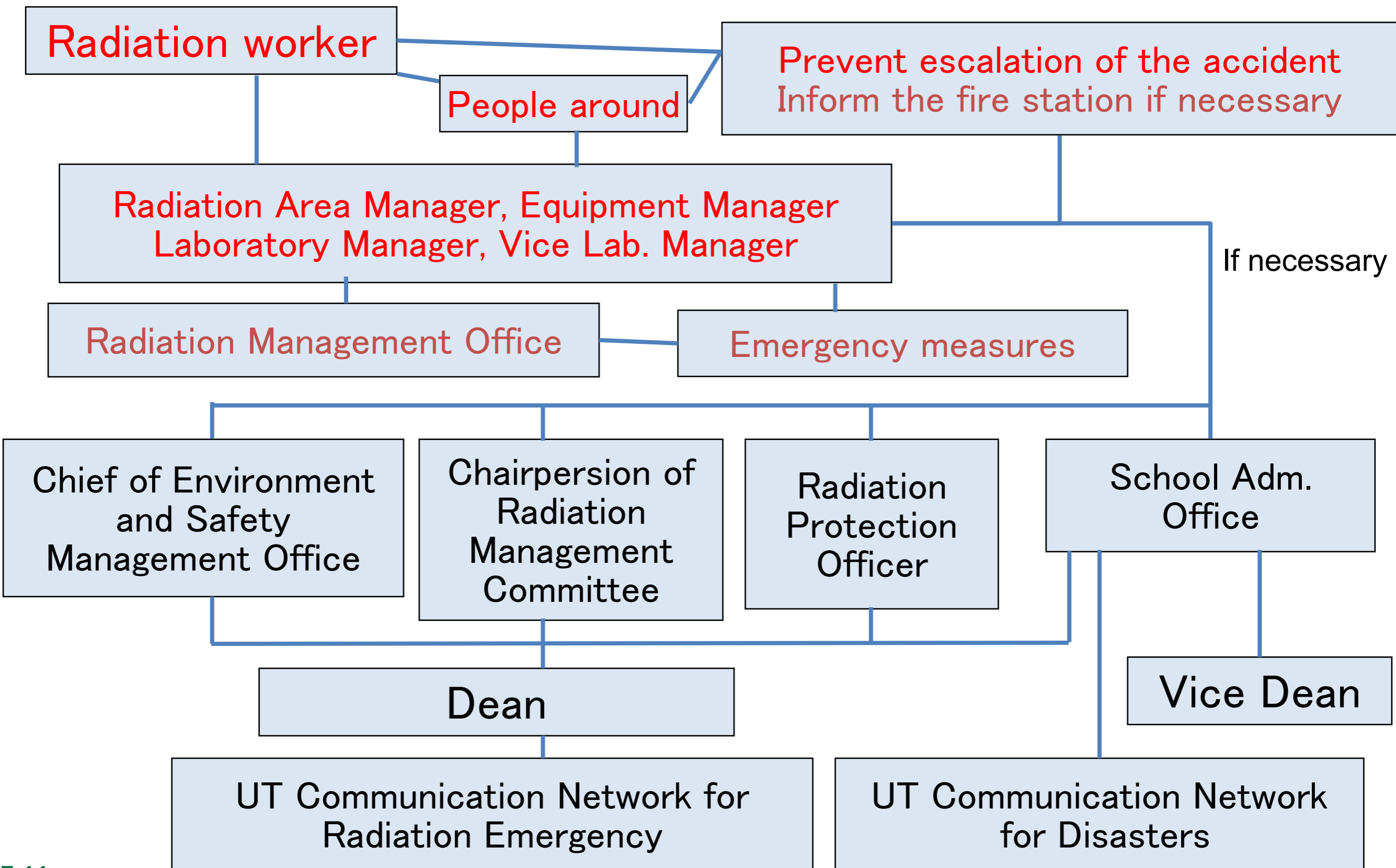
Article 45 (Measures in case of disasters)

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



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

登録申請

Application for registration

健康診断

Medical check for radiation workers

(X-AB を除く) 年2回問診票 (except for X-AB users) Submission of check sheet twice a year

全学一括講習会

e-learning

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 (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.

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)

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.

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.)

1. You have attended the department course in the relevant year.
2. You have undergone health check (submitted the radiation worker health check sheet) in the relevant year.

School of Science **Contacts**

<p>Application for UTokyo Training courses.</p>	<p>Each Department Office or Environmental Safety Office (ext. 28868)</p>
<p>Distribution and recovery of Luminess badge dosimeter.</p>	<p>School of Administrative Office (ext. 24030)</p>
<p>Application for registration of Radiation Worker. Change of registration of Radiation Worker.</p>	<p>Radiation Management Office (ext. 24606) (Members of Dept. Physics should apply at the 1st or 2nd Dept. Office)</p>
<p>Authorization as a Radiation Worker. Issuance of certificate. Purchase, transportation and disposal of RI. Unusual accidents or problems.</p>	<p>Radiation Management Office (ext. 24606)</p>