

# **EEM420 Nuclear Energy and Disasters – Laws and Regulations with International Relations**

**3rd and 4th quarters, Senior**

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<b>Instructor</b>	YASUDA NAKAHIRO
<b>Style of Class</b>	Lecture
<b>Number of Credits</b>	2
<b>Day and Period</b>	To be advised

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## **Course Description**

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Since the accident at the Fukushima Daiichi nuclear power plant, there have been amendments made to certain nuclear energy laws and regulations in Japan, including the Atomic Energy Basic Act, the Reactor Regulation Act and Act on Prevention of Radiation Hazards due to Radioisotopes, etc. Also, in connection with these amendments, the Basic Act on Disaster Control Measures and the Act on Special Measures Concerning Nuclear Emergency Preparedness have also been amended. The international standards made by the international organizations have been similarly strengthened. Taking materials from the nuclear energy laws and regulations, the lecture will mainly aim at leading the students to grasp the trends of those movements and the administrative structures on an international, domestic or regional basis and their mutual relations.

The students are expected to study the historical process together with the domestic and international standards to become able to appropriately respond to the international developments of nuclear energy and nuclear energy safety. Further, through the discussions in class, the students will research equivalent frameworks in other areas (such as medical and agricultural) based upon the international standards and basic attitudes toward accident management and disaster prevention in the field of nuclear energy, so that their perspectives will be cultivated to contribute on a local and global basis.

## **Course Objectives**

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The students will make researches into the relations between Japanese standards and the international standards to understand the overview of how the domestic legal framework is amended after the accident at the Fukushima Daiichi nuclear power plant. In addition, where necessary, the students will look into the actions taken in response to the accidents to extract the problems to form their own views towards the situation.

## **Prerequisites**

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None in particular.

## **Class Materials**

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Textbook:

Hirose Kenkichi, Wakariyasui genshiryoku kisei kankei hourei no tebiki [Easy Reference to Nuclear Energy Laws and Regulations], Taisei Publishing Co., Ltd., 2011.

Supplementary Materials:

IAEA “Fundamental Safety Principles” Series No. SF-1.

IAEA “Safety of Nuclear Power Plants: Design (Specific Safety Requirements)”, Series No. SSR-2/1.

## **Course Method**

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This course will in a lecture style. The lectures will be given basically according to the textbook (fundamental matters) and the supplementary materials handed out in the class (references, latest knowledge, etc.). In order to assess the level of comprehension, certain issues will be offered as appropriate for discussions by small groups and/or oral or written presentation to share the points of argument among the members of the class to foster student’s deeper understanding.

## Evaluation/Assessment

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Attendance and reports.

## Grading

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50% Presentations and reports

50% Attendance and term-end examination

## Course Schedule

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### **Week 1: Guidance and Outline of Nuclear Energy Laws and Regulations and International Standards**

Outline of nuclear energy laws and regulations and international standards, following the guidance of the course on the whole.

### **Week 2: Structure of IAEA International Standards; Safety Principle and Trends to Strengthen Standards**

Structure of international standards set by IAEA (International Atomic Energy Agency) and safety principle of IAEA International Standards, with recent trend to strengthen the standards.

### **Week 3: IAEA International Standards (Standards for Safety Design)**

IAEA International Standards, with focus on standards for safety design.

### **Week 4: IAEA International Standards (Standards for Accident Management)**

IAEA International Standards, with focus on standards for accident management.

### **Week 5: IAE International Standards (Emergency Responses/Safety Evaluation)**

IAEA International Standards, with focus on emergency responses and safety evaluation.

### **Week 6: IAEA International Standards (Transport and Trial Operation and Operation)**

IAEA International Standards, with focus on transport and trial operation and formal operation of nuclear reactor.

### **Week 7: Nuclear Energy Laws and Regulations in Japan (Part 1)**

First of the two lectures to discuss the contents of laws and regulations, such as the Atomic Energy Basic Act and the Reactor Regulation Act.

### **Week 8: Nuclear Energy Laws and Regulations in Japan (Part 2)**

Second of the two lectures to discuss the contents of laws and regulations, such as the Act on Special Measures Concerning Nuclear Emergency Preparedness and new regulations.

### **Week 9: Relationship between the Fukushima Accident and International Standards and Safety Regulations (Part 1)**

First of the two lectures to study about the implication of the accident at the Fukushima Daiichi nuclear power plant on the international standards and safety regulations.

### **Week 10: Relationship between the Fukushima Accident and International Standards and Safety Regulations (Part 2)**

Second of the two lectures to study about the implication of the accident at the Fukushima Daiichi nuclear power plant on the international standards and safety regulations.

### **Week 11: International Systems and International Laws and Regulations relevant to Nuclear Nonproliferation and Nuclear Security**

International systems and international laws and regulations relevant to nuclear nonproliferation and nuclear security.

### **Week 12: Other Relevant Laws and Regulations (Act on Compensation for Nuclear Damage, Designated Radioactive Waste Final Disposal Act)**

Other laws and regulations relevant to the nuclear energy, focusing on the Act on Compensation for Nuclear Damage and the Designated Radioactive Waste Final Disposal Act.

### **Week 13: Laws and Regulations concerning Disaster Contingency Planning**

Relevance between the Basic Act on Disaster Control Measures and other similar laws and regulations and the laws and regulations concerning the nuclear energy.

**Week 14: Laws and Regulations concerning Radiation**

Act on Prevention of Radiation Hazards due to Radioisotopes, etc., the Ordinance on Prevention of Ionizing Radiation Hazards, the Regulations on Transport by Vehicles of Radioisotopes, etc. and other relevant laws and regulations.

**Week 15: Application of International Standards to Nuclear Energy/Final Examination**

**Preparation and Follow-up**

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1. Prepare for the class by studying the points listed in the hand-out materials (containing pre-announcement for the next session, points of arguments, etc.), and come to class prepared with their own opinions.
2. Works on assignments that will be given after the lectures for review (mainly submission of reports).