

Developing Curricula for RPOs

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Everybody seems to be acquainted with what a RPO needs to know. Defining the curricula is obviously an easy task. But is this really so? The author describes a sophisticated method. It begins with identifying the relevant groups of RPOs, a risk assessment for these groups and then defining the appropriate knowledge and skills a course should convey to the participants. In Germany this method was successfully applied to define the curricula for RPOs working with x-ray devices. Due to limited space this poster describes only the risk assessment, which can also be applied for any workplace to define protection measures.

Degree of Severity	Health Consequences	Example	Radiological Example (deterministic)	Radiological Example (stochastic)
1	no	no injury	no	$E < 1 \text{ mSv}$
2	trivial	small cut injury	no visible effects	$E < 20 \text{ mSv}$
3	moderate	simple fracture	temporary erythema	$E < 250 \text{ mSv}$
4	permanent	loss of limbs	local damage, causing amputation	$E < 5 \text{ Sv}$
5	lethal	death	death	$E > 5 \text{ Sv}$

1. Categorization of Health Effects

In Germany we have about 30 different curricula for the training of RPOs based on their main tasks and the techniques and devices they work with. It seems to be more meaningful to identify the Relevant Groups of RPOs by a **Risk Assessment**.

In order to simplify this process, you categorize the variables and simply add them.

Mostly one uses 4-6 categories. I chose 5 for both factors. The first table shows examples for conventional deterministic and stochastic health effects.

The probability in the second table can be given by the duration of a dangerous task or by how often a dangerous situation occurs.

RISK = Seriousness of Health Effects * Probability of Occurrence

RISK ANALYSIS = Registration of all possible Risks

RISK ASSESSMENT = Risk Analysis + Rating

RISK ANALYSIS -> RISK ASSESSMENT -> OBJECTIVES -> MEASURES

1	very improbable
2	low
3	medium
4	high
5	very high

The matrix below (third table) shows the sum of both categories. It varies from 2 (very low risk) to 10 (extremely high risk).

At a risk of 2-4 normally no further action is necessary.

At a risk of 5-7 you will seriously have to think about improvements.

At a risk of 8 and more specific measures are needed immediately.

2. Categorization of the Probability of Occurrence

Degree of Severity	1	2	3	4	5
Probability of Occurrence					
1	2	3	4	5	6
2	3	4	5	6	7
3	4	5	6	7	8
4	5	6	7	8	9
5	6	7	8	9	10

3. Risk Assessment (according to Nohl)

The aim of the risk assessment is to identify the objectives to be achieved and see what measures of occupational safety and radiation protection are required. In this case it means, to define the necessary contents of a course for a specific group.