The Systematic Approach to Training & ADDIE

Webinar participant book

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Introduction

The highly regulated nuclear industry requires individuals responsible for tasks that may affect safety or security to be suitably qualified and experienced.

The systematic approach to training (SAT) offers a logical progression from identifying the competencies required to perform a job to developing and implementing training programmes designed to achieve those competencies.

The ADDIE model can help you develop a sustainable training programme that targets the exact competencies staff need to perform their job duties.

This webinar on the systematic approach to training and the ADDIE model will explain how these tools can support strategic human resources development in your organisation.

Learning Outcomes

- Describe the concept of the Systematic Approach to Training
- List the five parts of the ADDIE model
- Identify assessment methodologies
- Apply SAT to a relevant nuclear case study

Competency Framework Webinars

Webinar 1: Nuclear Security Competency Framework Development and Training Needs Analysis

Webinar 2: Developing Competencies and Preparatory Measures to Adopting a Competency Framework

Webinar 3: Road Map: Step-by-Step Guide to Adopting a Competency framework

Systematic Approach to Training

Webinar 1: Development of Training and Training Needs Analysis

Webinar 2: Further Development of the Systematic Approach to Training

> ❝ **An approach that provides a logical progression from the identification of the competencies required to perform a job to the development and implementation of training to achieve these competencies and subsequent evaluation of this training.**

IAEA (1996), Nuclear Power Plant Personnel Training and its Evaluation: A Guidebook, Technical Report Series No. 380.

The Importance of the SAT Methodology

The SAT methodology has been developed globally and is increasingly the standard in the development of training programmes. The development and delivery of cost-efficient, effective training is dependent on the identification of training needs and understanding the competencies required for a role. At the core of SAT is the cyclical process that supports the delivery of the right training, at the right time, within a continuous improvement and evaluation process.

Not applying the SAT methodology can leave an organisation:
- Teaching the right people the wrong skills
- Teaching the right skills to the wrong people
- Teaching the right skills the wrong way

SAT Around the World

The systematic approach to training is used around the world and in many industries. Some examples of guides to training development are seen below:

- IAEA's *Systematic Approach to Training for Nuclear Facility Personnel: Processes, Methodology and Practices*
- UK Office of Nuclear Regulation's *Training and Assuring Personnel Competence*
- WINS BPG *Managing Competency and Training*
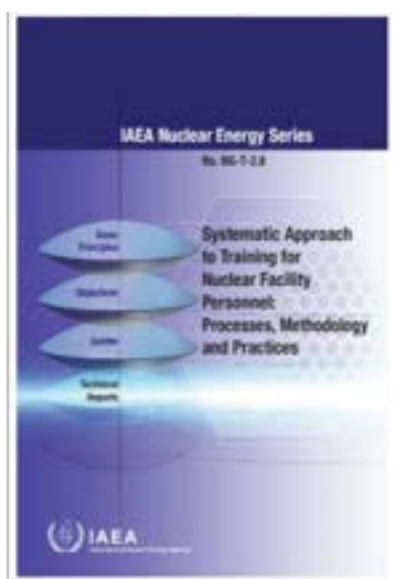
Questions to consider

- Are you familiar with similar documents in your country or region?
- Does your organisation have a framework for developing training and competency?
- How important is it for you to know where to find such documentation applicable to your country or region?

The ADDIE Model

Analysis

Needs, requirements, tasks and participants' current capability

Design

Learning objectives, activities and delivery format

Develop

Create prototype, develop materials, review and run pilot session

Implement

Deliver training, support systems in place and monitor

Evaluate

Knowledge, behaviour, results and revise

Questions to consider

How does following these steps benefit all the stakeholders?

- Training participants?
- Training sponsors?
- The organisation?

Surveys and questions

Interviews and focus groups

Competency assessment

Observations

The goal of the analysis phase is to determine the gap between the current and desired behaviours and whether training is the best way to close that gap. Many refer to the analysis phase as a training needs analysis/assessment (TNA), which can lead to preconceptions developing. The TNA is part of the analysis phase, but often training alone is not the optimum way to solve an identified performance deficiency.

Training Needs Analysis

The TNA extends beyond individual responsibilities and knowledge, skills and abilities. It should establish the training capability of the organisation; learner capacity; design and delivery resources; trainers (numbers and skills), IT, online learning, facilities and existing commitments. This information will inform the design, development and implementation phases.

Questions to consider

- How might the surveys, interviews and focus groups be conducted?
- What stakeholders might you collect information from?
- What are some alternatives to training to correct a performance deficiency?
- When might another option be more appropriate than training?

Design

In the design phase, competencies are converted into learning outcomes, a process to assess the achievement of learning is developed, and training is organised into a programme or curriculum.

At the heart of design are three processes:

Establishing learning outcomes

Designing learning activities

Deciding on appropriate assessment methods

Learning Objectives

Learning objectives are brief descriptions of how the aim is going to be achieved and are written from the perspective of the trainer. They can be helpful for designing and planning learning and for giving learners a sense of the learning experience. Objectives are expressed as things the trainer intends to do with the learners.

Learning Outcomes

In contrast to learning objectives, learning outcomes focus on the learners. They are concise statements describing what learners will be expected to be able to do if they have been successful, and they indicate the appropriate level of learner achievement. Learning outcomes describe or list measurable and essential mastered content, reflecting the knowledge, skills and abilities that the learners have achieved and can demonstrate upon successfully completing a course.

Question to consider

- What do you think are the most effective training methods?
- How do the learning outcomes impact the training methods?
- What is the relationship between learning objectives and learning outcomes?

Develop a lesson plan structure

Lesson plans are formal guidance notes that ensure consistency in the delivery of training from trainer to trainer and from learner to learner.

Develop training support material

Examples of training support materials include audio-visual media and printed material. The lesson plan should specify what training materials are required and when. All materials must be reviewed for suitability and technical accuracy.

Pilot the material

The training materials need to be piloted on a small group including trainees who possess the entry level requirements and other stakeholders.

Select and train the trainers

Trainer qualifications should have been identified during the design phase. Are the prospective trainers qualified to teach, and are they technically competent? All suitable trainers need to be trained in the delivery of the material.

Questions to consider

- How does the lesson plan support the different stakeholders: trainers, learners, learning designers, management?
- Do you think technical or instructional skills are more important for trainers? Why?
- How do the costs and benefits of e-learning compare with on-site training?

Implementation

The purpose of the implementation phase is to carry out training using the training materials, tools and aids developed and acquired during the earlier phases of SAT.

Scheduling and logistical arrangements

Preparations to conduct training

Conduct training

Receive feedback

Questions to consider

- With limited resources, how would you select which staff members should receive training?
- What are the advantages and disadvantages to conducting training on-site versus off-site?

Assessment

Test results

Feedback from trainees, instructors and managers

Trainer performance assessments

Observation of job performance

Evaluation is a dynamic process with three major activities: monitoring of indicators, analysing information, and initiating corrective actions.

Questions to consider

- What types of evaluations look at theoretical knowledge? How can you evaluate actual behaviour?
- How can you measure the change before and after training?
- Does the impact of training change over time?

Formative Assessment

Formative assessment is an informal process to gather information from which a trainer may apply different teaching methods if new learning isn't being achieved or needs to be reinforced. Examples include questions in class, group or individual assignments, and quizzes.

Summative Assessment

A summative assessment assesses performance against the learning outcomes to establish whether an individual has met a required standard. Examples include written or oral exams and performance tests.

Questions to consider

Think back to the last training you completed:

- Were there activities during the course that helped you understand your progress?
- Was there a final evaluation or certification?

Summary

The systematic approach to training can ensure your nuclear security training programme is developing the workforce you need.

The ADDIE model helps you develop a sustainable training programme that targets the exact competencies staff need to perform their job duties.

Closing Message

The safe and secure management of nuclear and other radioactive materials requires that individuals tasked with these responsibilities have the necessary qualifications and experience. The licensee has to ensure that such expertise is cultivated, and they must demonstrate to regulatory authorities that appropriate mechanisms for professional development are in place.

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