

Principles for the Testing and Certification of Blended Learning Programmes for OSH

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These Test Principles serve as evidence that the requirements have been met of DGUV Rule 100-001, Chapter 2.3.1 regarding the use of Electronic Tools for Instruction as well as the quality criteria developed on the basis of DIN EN ISO/IEC 19767-1:2009.

The principles, which follow the latest findings from the field of occupational safety and health (OSH), will be revised or supplemented from time to time. Only the latest edition is valid for testing by the Testing and Certification Body of the Institute for Work and Health of the German Social Accident Insurance (IAG).

Changes from 2012-04 Edition:

1 General:

- Editorial revision
- Appendices 1 and 2 integrated into the general text
- Rules deleted that constitute a doubling-up of the rules of the Testing and Certification Regulations

2 Terms

- Terms supplemented

5.2.18 Sales materials

- Requirements for sales materials added.

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1. General

1.1. Scope of application

These principles apply to the testing and certification of e-learning programmes which are used in OSH as electronic instruction tools as part of a blended learning concept.

1.2. Test specifications

The requirements described under Section 5 are used for testing and certification.

In addition to these requirements, parts of the standards listed below are also used.

- DIN EN ISO IEC 19796-1:2009-08: Information technology – Learning, education and training – Quality management, assurance and metrics – Part I: General approach
- PAS 1032-1:2004-02: Education and training with special focus on e-learning – Part 1: Reference model for quality management and quality assurance; planning, development, implementation and evaluation of training processes and training services

1.3. Subcontracting

The Testing and Certification Body, in consultation with the client, may subcontract third parties, particularly regarding expert opinions on the technical accuracy of learning content.

1.4. Certificate and certificate expiration

The Testing and Certification Body provides a DGUV Test Certificate following a successful certification decision and officially recognises the DGUV Test Label “Certified Blended Learning Programme in OSH”.

The certificate is valid for a maximum of 2 years.

1.5. Validity

These testing principles are effective as of 1 May 2016.

2. Terms

2.1. Instruction

Instruction is the provision of information, explanations and directions (instructions) tailored to individual work and job situations which enable the recipient to behave in a safe and healthy manner.

2.2. Blended learning programme

A combination of a media-based application with face-to-face elements. Specifically: in addition to instruction with electronic tools, this involves direct communication between the instructor and the learner.

2.3. Web-based training

Interactive application used per browser via the Internet (World Wide Web) or a company's internal network.

2.4. Computer-based training

Interactive application which runs on a computer without the need to be connected to the Internet or a company's internal network.

2.5. Personal data

Personal data is data from a user that is collected and stored as part of user administration and/or billing of a service. Personal data is a part of user data.

2.6. COTS products

COTS (commercial off-the-shelf) products are software products that are sold in large quantities without customisation.

2.7. User data

User data consists of personal data and usage data.

2.8. Usage data

Usage data is information specific to a user which is stored as a product is used. Usage data is part of user data.

3. Test specifications

The requirements set out in Section 5 are the minimum requirements when testing. The specifications listed in Section 1.2 are used in part to assist with testing; however, they are not a central part of the test.

4. Documentation to be submitted for testing

Testing and certification requires the following documentation to be submitted:

4.1. Product information

- Application form
- User guide
- Administrator guide

4.2. E-learning programme

Access to either the web resource or the e-learning programme on storage medium (disc, USB-stick, etc), preferably with 3 copies.

5. Requirements for an OSH Blended Learning Programme

5.1. Software ergonomics

5.1.1. Font size

The text used in the learning programme uses an appropriate font size corresponding to the screen resolution specified by the customer. For COTS products that do not automatically adjust the learning modules to the screen resolution, the selected resolution should reflect the current state of technology for screen resolution (currently an aspect ratio of 4:3 assumes a resolution of 1280x1024 and an aspect ratio of 16:10 assumes a resolution of 1680x1050).

5.1.2. Font contrast

The contrast between the text and the background is sufficiently high and allows fatigue-free reading of text.

5.2. General conditions

5.2.1. Product documentation

The product comes with comprehensive documentation including an administrator guide and a description of the programme. Operating tips for the learner can be integrated into the start of the learning modules.

5.2.2. Documentation refers to supplementary verbal (face-to-face) instruction

The documentation clearly states that it is obligatory to participate in supplementary face-to-face instruction carried out by a supervisor/trainer where the actual relevance to the job is explained and workplace hazards are described. There are didactic notes for the meaningful linking of the two training components.

5.2.3. Programme refers to supplementary verbal (face-to-face) instruction

There is reference in the learning programme at the start and end of the learning module (at minimum) to the obligation to participate in supplementary face-to-face instruction with a supervisor/trainer.

5.2.4. Time aspects

The estimated time needed to complete the learning programme is mentioned in the documentation. If the product contains multiple learning modules, then the estimated time to complete each module is mentioned in addition to the total time needed for the total product.

5.2.5. Situational aspects

The documentation contains specific instructions on how the product should be used in a company, how it can be embedded didactically and which conditions need to be in place in the company (e.g. a place to work undisturbed, preparation work, follow-up work) in order to use the product.

5.2.6. Advice concept

If external advice is offered for the product in the form of technical support or tutorial support, all necessary information concerning this must be mentioned in the documentation. Where there is tutorial support, the user is informed of this within the learning programme.

5.2.7. Description of objectives

The objectives of the product are described in the documentation.

5.2.8. Skills and abilities

The documentation states which skills and abilities are to be taught by the programme and the supplementary face-to-face instruction. The documentation also lists any potential limitations.

5.2.9. Target groups

The documentation names the target groups for which the product is conceived and suitable. If there are certain restrictions for the target groups, these are also documented.

5.2.10. Previous specialist knowledge

If previous specialist or technical knowledge is imperative for using the learning programme, for example, consecutive completion of several modules, this previous knowledge must be mentioned in the documentation. There must also be an appropriate notification within the learning programme itself.

5.2.11. Personal prerequisites

The documentation includes, where necessary, information about personal prerequisites the user must have to use the learning programme (e.g. necessary computer skills).

5.2.12. Accessibility options for learning

The documentation includes information about the existence/non-existence of accessibility features which assist people with disabilities to use the learning programme.

5.2.13. Languages

If the product supports multiple languages, these are to be listed in the documentation. There should also be tips within the learning programme about changing the language.

5.2.14. Currency of the product

The documentation and the learning programme provide information regarding how current the product is and whether there is an update service.

5.2.15. Linguistic correctness

Both the documentation and the learning programme meet applicable standards regarding spelling, grammar and punctuation.

5.2.16. Quality standards of the product

If the product meets existing quality standards, the standards relevant to the product should be mentioned in the documentation.

5.2.17. Copyright/Right of Use

In the event that purchasing the product grants further rights of use or exploitation, these are to be mentioned in the documentation. This also applies to any usage restrictions associated with the product.

5.2.18. Sales materials

Marketing of the product in sales brochures, catalogues, internet sites, etc. must not contradict the product documentation in terms of supplementary face-to-face instruction and the time aspects of the learning process.

5.3. Technical aspects

5.3.1. System requirements

The documentation explains which system requirements (including peripheral devices) must be met in order to ensure that the product runs smoothly. Minimum and optimum configurations are provided.

5.3.2. Installation/Uninstallation

The product has appropriate processes for installation and uninstallation. A user dialogue provides information regarding progress. If programme components or user data are left on the computer following uninstallation, the user is to be informed of this.

5.3.3. Transmission to the server

If the product is a client-server application for use on a network or the Internet, appropriate security measures should be in place for transmitting data between the client and the server; these measures should be documented.

5.3.4. Server security

If the product is an Internet-based application, appropriate server security must be in place and documented.

5.3.5. Availability/Performance

For Internet-based services, information regarding the availability and performance of the service must be supplied.

5.3.6. Naming a person responsible for technical aspects

The documentation must name a contact person or person responsible for technical aspects in the event that this is required by the German Federal Data Protection Act.

5.3.7. Technical support

If the product offers technical support, appropriate contact information must be provided and made available to the user in a suitable manner.

5.3.8. User login

If a user login is part of the product, the user must have the option to request lost login data.

5.3.9. User data

The documentation must contain information regarding the storage of usage data and the user must be informed in a suitable manner about the nature, scope and duration of storage. In the event that this information is not used to document the instruction, the learner must have access to their personal data and be in a position to edit or delete it.

5.3.10. Access to user data

Particularly with regard to online services, it must be documented who has access to user data and which access rules exist.

5.4. Storing and editing data

5.4.1. Specification of stored data

The documentation must specify which data is stored during use of the product.

5.4.2. Learning progress

The learner must be informed if user data is being stored to show learning progress.

5.4.3. Checking learning success

If detailed user data is stored as part of checking learning success, for example, answers to individual questions, the user must be informed of this. In this situation, the learner must have access to their results at a later date.

5.5. Functionality

5.5.1. Overview of contents

The learner can obtain an overview of the contents within the learning programme, for example, as a table of contents or a sitemap.

5.5.2. Navigation

The learning programme has suitable steering elements which the user can use to navigate through the programme.

5.5.3. Printing

Within the programme it is possible to print individual screenshots or chapters.

5.5.4. Control bar – sound

A control bar must be available for all audio content.

5.5.5. Control bar – video

A control bar must be available for all video content.

5.5.6. Endng programmme

The learning programme has a function to end the programme.

5.5.7. Continuing programme

The learning programme offers the learner the possibility to continue their progress from the position at which they last ended the programme.

5.6. Theoretical aspects

5.6.1. Learning psychology

The learning programme uses appropriate measures from learning psychology to motivate the learner and promote the acquisition of knowledge.

5.6.2. Exercises

If there are exercises in the learning programme, the learner must immediately be given feedback if their answer was correct or false. Alternatively, they must be provided with the opportunity to compare their answer with a sample solution.

5.6.3. Tests

If successful learning is checked via a test in the learning programme, the learner must immediately be given feedback following completion of the test. In order to prevent answers being learnt off-by-heart, the test questions should be randomly generated from a pool of questions.

5.6.4. Design

The design and presentation of the contents of the learning programme are in an appropriate didactic form.

5.6.5. Assistance

Absorbing and working on the content in the programme is assisted by suitable measures such as formatting, summaries and side information.

5.6.6. Difficulty level/complexity

The difficulty level and complexity correspond to the selected target group.

5.6.7. Additional measures

To support successful learning, the programme makes use of suitable measures such as rules of thumb, mnemonics and examples.

5.6.8. Didactic model

The learning programme is based on a didactic model appropriate to the target group and the learning objectives. The didactic model follows the blended-learning approach.

5.6.9. Didactic use of media

The design and sequence of media used in the learning programme follows the didactic principles of good media use.

5.7. Coding of information

5.7.1. Content-equivalent information transfer

Information is edited/processed in terms of its content and is presented in a multimodal encoded format.

5.7.2. Picture quality

Pictures are presented in suitable quality and size. The main content of the image must be recognisable.

5.7.3. Text

Text is written in an appropriate language for the target group and is suitable in terms of nature and scope for viewing and using via a monitor.

5.7.4. Consistency of terms

Terms are used consistently in the learning programme.

5.7.5. Technical terminology/Translation

Technical terms used in the learning programme are explained when they are introduced. In addition, the programme has a corresponding glossary.

5.7.6. Spoken text

The content and syntax of spoken text is designed to be easily understood. Speech rate, pronunciation and intonation are appropriate and support the uptake of information.

5.7.7. Tables

Tables are used to present facts in a structured form. The relevance and connections in the table are made clear through its design and headings.

5.8. Format and design

5.8.1. Animations

Animations are used to present information. Animations are self-explanatory where possible, they make it easier to understand complex information and they encourage successful learning.

5.8.2. Simulations

Simulations are used to represent real-life correlations. Variables can be adjusted to illustrate rules and functional laws.

5.8.3. Exercises

Exercises are designed so that the learning content helps with the solution.

5.8.4. Multiple-choice questions

The way multiple-choice questions are designed makes it clear whether there is only one correct answer or multiple answers are possible.

5.9. Technical aspects of OSH

5.9.1. Current state of technology/legislation

The learning programme presents information using the most current state of OSH technology and OSH legislation.

5.9.2. Hazards

The content of the learning programme makes reference to hazards.

5.9.3. Relevance to job and workplace

The content of the learning programme has a sufficient level of relevance to the learner's job and workplace.

5.9.4. Practical focus

The objectives of the learning programme are focused on practical application and support the acquisition of practical hands-on skills.

5.9.5. Checking learning success

A means of checking learning success with a test/quiz of suitable scope and difficulty level is part of every learning module.

5.9.6. Programme description

The programme description provides information about the possible uses for the product and emphasises that it is an instructional tool.