APO

Qualification Procedures

of MTM ASSOCIATION e. V.

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1 Preamble

The globally uniform dissemination of the MTM method – the performance standard for human work based on the MTM Standard Performance and the internationally acknowledged training standards MTM- and EAWS-Practitioner as well as MTM- and EAWS-Instructor – is one of the essential tasks of MTM ASSOCIATION e. V. (MTMA) and the One-MTM network.

This requires high quality training to be performed throughout the world, which is achieved and guaranteed by globally uniform admission requirements (AR), training materials, rules, and syllabi.

For MTMA and all partners of the One-MTM network a globally acknowledged training standard is based on:

- the standardized and worldwide acknowledged Reference Performance Consistency, and clearly defined application rules and calculation instructions,
- clearly defined trainings that are universally comparable with respect to admission requirements and degrees (certificates), scope or duration of the individual training measure, training materials, and didactic tools, such as repetition exercises, films, and examinations,
- clearly defined and universally comparable degrees, such as the "Blue Card" for MTM-Practitioners and EAWS-Practitioners, and the "Green Card" for MTM-Instructors and EAWS-Instructors,
- guaranteed availability and multilingualism of all qualification measures offered,
- clearly defined quality requirements on instructors (contents and accomplishment of the qualification as instructor), as well as guaranteed high quality,
- the initiation and continuation of an experience exchange between MTM and EAWS users, and
- the international publicity of the MTM methodology and the related training measures and degrees, as well as its worldwide dissemination and a great number of users.

The Qualification Procedures of MTMA are an absolutely crucial basis for the implementation of these training standards. They define or create, for example, the currently valid admission requirements, the training principles, the training and examination materials, as well as the currently valid valuation guidelines.

The Qualification Procedures are decided on by the Examination Board of MTMA, i.e. by MTM experts and active MTM-Instructors from the member companies of MTMA. The Examination Board is the highest body to secure the national and international training standards.

In the trainings standardized training materials are used. As a **standard, MTM** provides the **participant** with

- a training manual,
- forms,
- data card(s),
- daily repetition exercises, and
- an examination, and

the **instructor** with

- a presentation,
- films (training/ exam),
- a syllabus,
- solutions to the problems in the manual,
- solutions to the repetition exercises,
- solutions to the training films,
- solutions to the examination questions, and
- solutions to the examination films.

2 Introduction

All qualifications can be gained in either public or in-house trainings. Admission requirements, procedure during the course, and examination are identical for all variants. The Qualification Procedures (APO) describe the valid admission requirements, the principles of qualification, teaching contents and learning objectives, the training manuals and examination papers, as well as the currently valid evaluation principles for the individual training measures.

Gender equality
For the benefit of improved readability, gender-related terms referring to both female and male persons will be used in the male form only in these Qualification Procedures, as well as in all training materials published by MTMA. So, for example "participant" will be spoken of as "he" even if it refers to a female. This is BY NO MEANS to imply a defiance of gender equality or an infringement of the principle of equality.

2.1 Training Offered by the MTM ASSOCIATION e. V.

Teaching contents	Admission requirements (Certificate in the stated training)	Duration in h	
MTM-Practitioner			" Blue Card" (MTM)
MTM-1 Base	None	40	
MTM-1	MTM-1 Base	40	
MTM-HWD	MTM-1 Base	40	
MTM-SD	MTM-1 Base (MTM-1 recommended)	40	
MTM-2	MTM-1 Base	40	
MTM-UAS	MTM-1 Base	40	
MTM-Logistics	MTM-1 Base	40	
MTM-Logistics (Standard Operations)	MTM-UAS	20	
MTM-MEK	MTM-1 Base	40	
C-Values	MTM-1 Base, MTM-SD (minimum 2 days)	40	
Refresher MTM-1, MTM-HWD, MTM-SD, MTM-2, MTM-UAS, MTM-Logistics, MTM-MEK or C-Values	Certificate in the respective MTM process building block system	20	
MTM-Practitioner	MTM-1 Base and MTM-1 or MTM-HWD or MTM-SD or MTM-2 or MTM-UAS or MTM-Logistics or MTM-MEK or C-Values	40	
Practitioner-Refresher MTM-1, MTM-HWD, MTM-SD, MTM-2, MTM-UAS, MTM-Logistics, MTM-MEK or C-Values	"Blue Card" (MTM) and mandatory analyses in the respective MTM process building block system in accordance with Appendix 1 of APO.	20	
EAWS-Practitioner			" Blue Card" (EAWS)
EAWS	None	40	
Refresher EAWS	Certificate EAWS	20	
EAWS-Practitioner	EAWS	40	
EAWS-Practitioner Refresher	"Blue Card" (EAWS) and mandatory analyses in accordance with Appendix 3 of APO.	20	
MTM-Instructor			" Green Card"
MTM-Instructor	MTM-1 plus a certificate in one of the following training courses: MTM-HWD, MTM-SD, MTM-2, MTM-UAS, MTM-MEK, EAWS, C-Values, valid "Blue Card" (MTM), and minimum one year of practical experience, mandatory analyses[1]	40	
License Course MTM-1	MTM-1, MTM-Instructor, mandatory analyses[1]	20	
License Course MTM-HWD	MTM-HWD, MTM-Instructor, mandatory analyses[2]	20	
License Course MTM-SD	MTM-SD, MTM-Instructor, mandatory analyses[1]	20	
License Course MTM-2	MTM-2, MTM-Instructor, mandatory analyses[1]	20	
License Course MTM-UAS	MTM-UAS, MTM-Instructor, mandatory analyses[1]	20	
License Course MTM-MEK	MTM-MEK, MTM-Instructor, mandatory analyses[1]	20	
License Course C-Values	MTM-SD, C-Values, MTM-Instructor, valid teaching license for MTM-SD, mandatory analyses[1]	20	
License Course MTM-Practitioner	A valid teaching license for the required MTM process building block system	8	
EAWS-Instructor	One process building block system (recommended: MTM-UAS), valid "Blue Card" (EAWS), minimum one year of practical experience, mandatory analyses as specified in Appendix 3 of APO	40	
License Course EAWS	EAWS-Instructor, mandatory analyses as specified in Appendix 3 of APO	24	
Further Trainings			
ProKon	None	16	
Process Architecture	MTM-1 Base and a certificate in one of the following trainings: MTM-1, MTM-HWD, MTM-SD, MTM-2, MTM-UAS, MTM-Logistics, MTM-MEK or C-Values	24	
MTM and Value Stream	None (basic knowledge of MTM recommended)	24	
MTM Visual Inspection	None (MTM-1 Base recommended)	24	
Basics of Ergonomics	None	24	
Methods-Time Measurement for students (MTM-1 Base and MTM-UAS)	Matriculation	80	

[1] The mandatory analyses have to be created in the respective process building block system in accordance with Appendix 2 of APO (e. g. the mandatory analyses for the license course MTM-UAS have to be created with MTM-UAS).

2.2 List of Abbreviations

Abbreviation	Training
APO	Qualification Procedures
BMW SD	BMW Standard Data
C-Values	Daimler MB Planned Time Values
EAWS	Ergonomic Assessment Worksheet
EAWS-Practitioner (EAWS-Pra)	Ergonomic Assessment Worksheet Practitioner
MTM	Methods-Time Measurement
MTM-1	MTM-1
MTM-1 Base	MTM-1 Base
MTM-2	MTM-2
MTMA	MTM ASSOCIATION e. V.
MTM-HWD	MTM Human Work Design
MTM-LOG	MTM-Logistics
MTM-MEK	MTM for One-of-a-Kind and Small Variable Batch Production
MTM-PA	Process Architecture
MTM-PRA	MTM-Practitioner
MTM-SD	MTM Standard Data
MTM-SOL	The MTM Standard Operations Logistics
MTM-UAS	MTM Universal Analyzing System
MTM-VI	MTM Visual Inspection
MTM-VS	MTM and Value Stream
PEP	Product Engineering Process
ProKon	Production-Oriented Design

3 Principles of Training and Examination

The Examination Board of MTMA enacts, rescinds, complements, changes, or adjusts the guidelines related to both MTM training measures and the creation of examination papers. For decision-making a simple majority of votes of the members of the Examination Board present is sufficient.

3.1 Transitional Provisions for International MTM Trainings

Due to the fact that all MTM training measures (MTM-Practitioner and MTM-Instructor) worldwide are currently embedded in the training scheme of MTMA, its management will be entitled to develop and apply appropriate standards for the acknowledgement of MTM trainings attended abroad or MTM certificates received abroad. In case of doubt, a decision will be made by the Examination Board.

3.2 General Remarks

The successful termination of an MTMA training will be confirmed by the issuance of a certificate, provided that all admission requirements were met.

The Admission Requirements (AR) define the formally required criteria for the issuance of a full-value certificate for the corresponding training. If not all admission requirements have been met or if the training was not terminated successfully a digital confirmation of participation will be issued.

For workshops a certificate will be issued (if required or on request).

All these training measures are based on and in line with the syllabi issued by the Examination Board.

MTMA assigns licensed instructors to carry through public trainings.

Candidates who missed more than 30 % of the training, due to bad health or for other reasons, cannot complete the training successfully and will not receive a confirmation of participation.

The hours stated under "Duration of Training" represent minimum requirements.

3.3 On-Site Attendance Courses, Webinars, or E-Learning

MTMA trainings are conducted either as one-site attendance courses, webinars or as e-learning, or in combination.

Public and in-house trainings either require on-site attendance or are offered as webinars and are taught by a licensed MTM-Instructor in accordance with the currently valid Qualification Procedures of MTMA.

Trainings are available as e-learning and are also subject to the currently valid Qualification Procedures of MTMA. The participant completes these trainings on his own responsibility.

3.4 Trainings with Examination and their Scoring

The examination at the end of a training course is normally done in written form, either in the classroom or online and/or in oral form.

The examination consists of

- multiple-choice questions or questions that require written answers,
- analyses to be created based on a film or a written work system description, and
- oral parts, such as the presentation of work results from preceding group or individual work.

The Examination Board of MTMA releases the examination tasks.
In classes that require personal presence, examinations are carried out under supervision. The written exam in both public and in-house trainings is supervised by the instructor (person conducting the training) or by a member of the Examination Board or by another person authorized by MTMA The supervising person is responsible for the correct execution of the exam.

Candidates who did not attend an acknowledged MTM training may also take the exams in the MTM process building block systems, if they can prove that they gained the required knowledge and skills in another way (e. g. self-study followed by a few months of successful practical application). The Examination Board may decide on an additional oral exam for these candidates.

The management of MTMA has the right to send a delegate from its Examination Board to every examination.

If, as an exception, an oral exam is required, this exam will be conducted by a member of the Examination Board or by another person authorized by MTMA.

The management of MTMA has the right to define specific regulations for conducting and supervising examinations, if required by, for example, the use of web conference tools and the like.

For in-house examinations, the instructor has to inform the MTM Academy about the date of examination and hand in a list of candidates no later than 3 weeks before the training starts. Normally, a sealed envelope with the examination questions will be sent together with the training materials to the ordering person or department. It is recommended to open the envelope only at the beginning of the exam, in the presence of the candidates. All examination papers received have to be returned to the management of MTMA for scoring; normally, they are sent back on the day of the exam.

Scoring will be done by a member of the Examination Board or by an expert authorized by the management of MTMA. As a rule, MTMA will inform the instructor, the individual participant, or the ordering person or department about the examination results as soon as possible upon receipt of the scored exam papers.

The exam papers will be retained by MTMA for 6 months as of the date of examination. The period of retention for examination results is 10 years.

The Examination Board specifies the total score for every examination, as well as the minimum score for a "pass". The certificate is proof of the diploma holder's expertise. This evaluation standard (achieving 75 out of 100 %) is valid for all MTM examinations.

Should a candidate fail to achieve the minimum score, he will receive, upon request, a neutral digital confirmation of participation instead of a certificate. In addition, the candidate may repeat the exam (written, online or oral) within the next six months. The repetition of an exam is subject to charges.

Should the candidate have failed twice to achieve the required result in this exam, the Examination Board of MTMA will decide in the given case on the necessity for the repetition of training.

Access to the examination papers is allowed only on the premises of MTMA and is subject to charges. Access to the digital examination parts is allowed via web meeting and is subject to charges. In principle, examination papers are not handed out to the candidate or any other person.

3.5 Certificates and Cards

Certificates and cards (e.g., "Blue and Green Card) are issued in digital form after passing the exam.

3.6 Coaching on the Job

The trainings for MTM-Practitioner and EAWS-Practitioner may also be done as Coaching on the Job. They are carried through solely in-house, in the form of individual or small group coaching with a maximum of eight participants. They are part of a real company project on design or improvement. Coaching on the Job ends with the presentation of the project results and an examination.

Both the participant and his company benefit from this type of training: the participant gains extensive methodological knowledge and – quasi as a side benefit – the "Blue Card". The company benefits from a qualified employee and from the fact that the coaching itself already reveals concrete design and improvement potentials.

Experienced instructors of MTMA give a helping hand in imparting knowledge in work method design, as well as directly in the design project or in applying the MTM method. The problems to be worked on in the company have to be agreed with the experts from MTMA prior to the start of the coaching. The project will be finalized by the presentation of results. The presentation will be graded by the instructor. The examination is the final step to be taken. Having passed the exam for MTM-Practitioner or EAWS-Practitioner the participant will receive the "Blue Card".

3.7 Trainings without Examination

These trainings require the student's active participation during the training itself, as well as in the group work on case studies or in business games. Participation will be confirmed by a certificate – provided that all necessary admission requirements were met, if applicable.

3.8 Workshops

Workshops, such as e. g. the Introduction to MTM, may be taught both public and, on request, in-house. There are no admission requirements. The main subjects of and the dates for public workshops are published on the internet in due time: https://training.mtm.org/

Procedure

Public as well as in-house workshops are taught in accordance with the Qualification Procedures of MTMA by either an instructor who is full-time employed by MTMA or a member of or a person authorized by the management of MTMA.

Training materials

The training manual consists of a hand-out, published by MTMA for the respective training measure. Further training materials comprise, for example, a presentation, the MTM training box, or the software program TiCon.

Duration of training

A workshop takes minimum 8 hours.

Score

On request, the participants receive a confirmation of participation.

3.9 The “Approved by MTMA” Procedure of Company-Specific Standard Operations and Company Process Building Block Systems

In addition to the original process building blocks (e.g., MTM-UAS Basic Operations), training courses in the MTM process building block systems MTM-HWD, MTM-SD, MTM-UAS, MTM-Logistics and MTM-MEK also include standard operations developed by MTMA (e.g., fasten), which can be applied on a cross-company basis.

In order to describe company-specific processes even more efficiently, the application of the MTM process building block systems has led to the creation of company-specific standard operations. The company-specific standard operations always require the supplementary application of the original process building block system and it’s set of rules.

In addition to the MTM process building block systems, there are acknowledged company-specific process building block systems approved by the MTMA (e.g., BMW Group SD and C-Values).

In order to provide companies with uniform international application and training, the MTMA has developed the "approved by MTM ASSOCIATION” procedure.

Before integrating company-specific standard operations and company process-specific process building block systems into the Qualification Procedures, the "approved by MTM ASSOCIATION” procedure must be completed. For this purpose, a written request must be submitted to MTMA. The request must include a teaching concept together with training material and back-up analyses in English and another national language.

After successful completion of the "approved by MTM ASSOCIATION” procedure, the training concept is submitted to the Examination Board for acceptance in accordance with the regulations described in the Qualification Procedures.

The respective company is responsible for maintaining the company-specific standard operations and company-specific process building block systems. Amendments may be submitted to MTMA and will be resubmitted to the Examination Board for approval if necessary.

4 MTM- and EAWS-Practitioner

4.1 Qualification as MTM-Practitioner

The qualification as MTM-Practitioner (see Illustration 1) addresses employees, professional and managerial staff as well as representatives from the works council and various other interest groups.

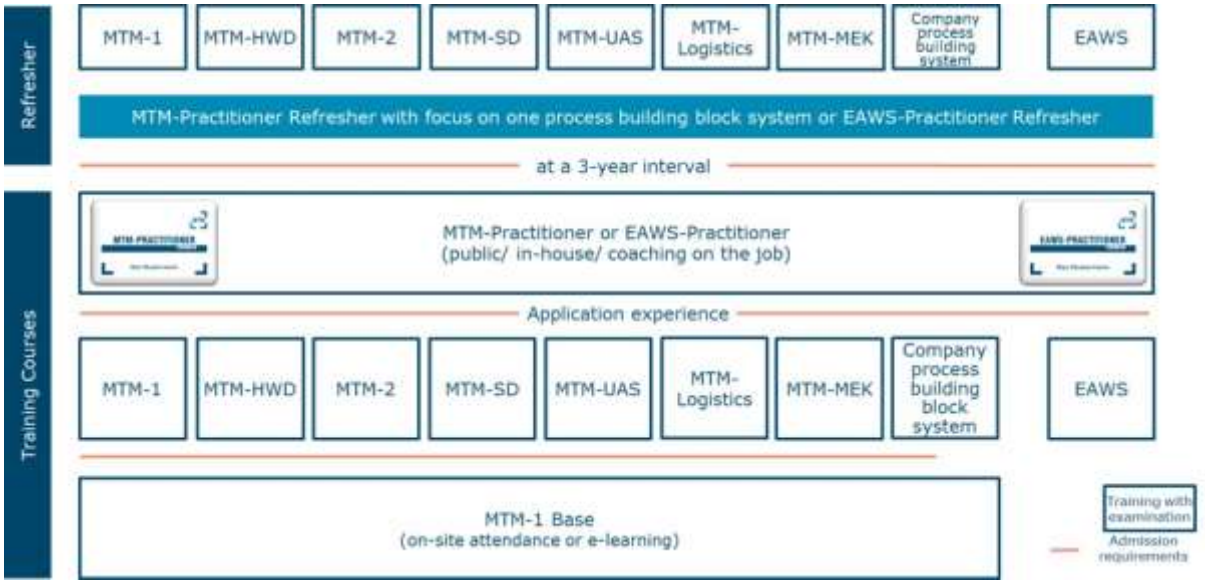

Illustration 1: Structure of the Training for MTM-Practitioner und EAWS-Practitioner

The qualification as MTM-Practitioner starts with the training in MTM-1 Base. The completion of MTM-1 Base entitles the candidate solely to participate in the training of an MTM process building block system. It is followed by the training in at least one MTM process building block system. Based on the knowledge acquired in the MTM process building block systems (PBBS), the training for MTM-Practitioner concentrates on product and process design in operational practice.

Prior to the participation in the training for MTM-Practitioner it is necessary to gain practical experience.

On successful completion of all required trainings the applicant will receive the "Blue Card" (MTM). the internationally acknowledged qualification certificate for MTM-Practitioners. The "Blue Card" is valid for three years.

It can be renewed by the successful completion of the MTM-Practitioner Refresher training with focus on one process building block system. The "Blue Card" (EAWS) can be renewed by the successful completion of the EAWS-Practitioner Refresher training.

4.1.1 MTM-1 Base

Admission requirements

There are no admission requirements.

Subject

The MTM-1 Base training imparts knowledge of and skills in the application of MTM-1 and explains the importance of the use of the individual MTM process building block systems.

Contents

- Historical development of MTM
- The importance of the Framework of MTM Process Building Block Systems
- MTM Basic Motions (limitation as to content and influencing factors), their practical application, and their importance for higher aggregated MTM process building block systems
- Rules for the consistent and correct use of the process building block system MTM-1
- Initial practical exercises to reduce the number of application errors or to consolidate the correct application of the process building block system MTM-1
- MTM degrees ("Blue Card" and "Green Card") and their national and international significance

Learning objectives

The participant **knows**

- the development and the structure of MTM-1,
- the areas of application of MTM-1 and the prerequisites for its use,
- the classification of MTM-1 in the Framework of the MTM Process Building Block Systems (general manufacturing environment), in which areas it is applied, in which respect it is similar to and in which it differs from other MTM process building block systems,
- the MTM Basic Motions and their fundamental significance for higher aggregated MTM process building block systems,
- the essential degrees in MTM training ("Blue Card" and "Green Card") and their national and international significance, and
- other MTM methods, such as ProKon and EAWS, as well as MTM tools, for example TiCon, and their importance and application in PEP.

The participant **is able to**

- read MTM-1 analyses and has gained initial experience in writing MTM-1 analyses, as well as in the application of the MTM-1 rules.
- use MTM-1 and gains initial experience in
    - planning and designing work methods, work processes, and workplaces,
    - shaping work contents (i.e. describe and assess them), and
    - improving existing work systems.
- explain the MTM Basic Motions and their fundamental significance for higher aggregated MTM process building block systems,
- select the MTM process building block system most appropriate in his professional environment, and
- assess from which further training measures he will benefit most in his profession.

Procedure

MTM-1 Base on-site attendance courses and webinars may be taught in accordance with the currently valid Qualification Procedures of MTMA (par. 3.3) by a licensed MTM-Instructor only.

As a rule, the number of participants is restricted to 20. Exceptions require prior written consent by the management of MTMA.

Training materials

The mandatory training materials consist of the MTM-1 manual, the MTM-1 data card (MTM Standard Times data card), daily repetition exercises, and various forms, all published by MTMA. Further teaching aids are the manual-related presentation, the MTM training box, the software TiCon, and films, which are provided together with the related work system descriptions, in accordance with the syllabus.

Duration of training

MTM-1 Base non-E-learning training takes 40 hours.

Examination

The training in MTM-1 Base ends with an examination. As an exception, the Examination Board may order an additional oral examination. The examination conditions are defined in par. 3.3.

Certificate

Having passed the MTM-1 Base exam the candidate receives a certificate. Should the participant have failed the exam, a digital confirmation of participation will be issued instead of the certificate.

4.1.2 MTM-1

Admission requirements

To be admitted to the MTM-1 training (MTM Basic System) the applicant has to have passed the MTM-1 Base exam.

Subject

The MTM-1 training imparts knowledge of and skills in the application of MTM-1 and explains the importance of the use of the individual MTM process building block systems.

Contents

- Consolidation of the rules for the consistent and correct use of the process building block system MTM-1
- Practical exercises to reduce the number of application errors or to consolidate the correct application of the process building block system MTM-1
- The creation of an analysis and synthesis of work processes with the MTM-1 process building blocks
- MTM degrees ("Blue Card" and "Green Card") and their national and international significance

Learning objectives

The participant **knows**

- how to proceed in and which documents to use for the creation of planning and production analyses with the process building block system MTM-1,
- the essential degrees in MTM training ("Blue Card" and "Green Card") and their national and international significance, and
- other MTM methods, such as ProKon and EAWS, as well as MTM tools, for example TiCon, and their importance and application in PEP.

The participant **is able to**

- create MTM-1 analyses independently and masters the MTM-1 rules,
- use MTM-1 correctly in practice, in particular to
  - planning and designing work methods, work processes, and workplaces,
  - shape work contents (i.e. describe and assess them), and
  - improve existing work systems,
- explain the MTM Basic Motions and their fundamental significance for higher aggregated MTM process building block systems,
- select the MTM process building block system most appropriate in his professional environment, and
- assess from which further training measures he will benefit most in his profession.

Procedure

MTM-1 on-site attendance courses and webinars may be taught in accordance with the currently valid Qualification Procedures of MTMA (par. 3.3) by a licensed MTM-Instructor only.

As a rule, the number of participants is restricted to 20. Exceptions require prior written consent by the management of MTMA.

Training materials

The mandatory training materials consist of the MTM-1 manual, the MTM-1 data card (MTM Standard Times data card), daily repetition exercises, and various forms, all published by MTMA. Further teaching aids are the manual-related presentation, the MTM training box, the software TiCon, and films, which are provided together with the related work system descriptions, in accordance with the syllabus.

Duration of training

MTM-1 training takes 40 hours.

Examination

The training in MTM-1 ends with an examination. As an exception, the Examination Board may order an additional oral examination. The examination conditions are defined in par. 3.3.

Certificate

Having passed the MTM-1 exam the candidate receives a certificate. Should the participant have failed the exam, a digital confirmation of participation will be issued instead of the certificate.

4.1.3 MTM-HWD (Human Work Design)

Admission requirements

To be admitted to the MTM-HWD training the applicant has to have passed the MTM-1 Base exam. Basic knowledge of ergonomics is recommended.

Subject

The MTM-HWD training imparts knowledge of and skills in the application of the process building block system MTM-HWD.

Contents

- Development of MTM-HWD
- MTM-HWD terminology and description form
- Actions, their limitations and influencing factors
- Rules for the consistent and correct use of the process building block system MTM-HWD
- Practical exercises to consolidate the correct application of the process building block system MTM-HWD
- Creation of analyses and synthesis of work processes with the MTM-HWD process building blocks for ideal design
- Using the MTM-HWD terminology to classify the results (e. g. ergonomic assessment with EAWS)

Learning objectives

The participant **knows**

- the spirit and purpose of process descriptions,
- the structure of MTM-HWD, in particular the MTM-HWD actions and influencing factors,
- how to model a process with MTM-HWD, and
- how to create and use an MTM-HWD modeling template.

The participant **is able to** apply MTM-HWD in practice, in particular to

- plan and design work methods, work processes, and workplaces,
- describe and evaluate work content, and
- improve existing work systems,

Procedure

MTM-HWD on-site attendance courses and webinars may be taught in accordance with the currently valid Qualification Procedures of MTMA (par. 3.3) by a licensed MTM-Instructor only.

As a rule, the number of participants is restricted to 12. Exceptions require prior written consent by the management of MTMA.

Training materials

The mandatory training materials consist of the manual MTM-HWD, the MTM-HWD description form, and the influencing factors card, all published by MTMA. Further teaching aids are the manual-related presentation, the MTM training box, software for the application of MTM-HWD, and films, all of which are provided together with the related information or task descriptions of the work systems, in accordance with the syllabus.

Duration of training

The MTM-HWD training takes 40 hours.

Examination

The MTM-HWD training ends with an examination. As an exception, the Examination Board may order an additional oral examination. The examination conditions are defined in par. 3.3.

Certificate

Having passed the MTM-HWD exam the candidate receives a certificate. Should the participant have failed the exam, a digital confirmation of participation will be issued instead of the certificate.

4.1.4 MTM-SD

Admission requirements

To be admitted to the MTM-SD (MTM Standard Data) training the applicant has to have passed the MTM-1 Base exam. The MTM-1 certificate is recommended.

Subject

The MTM-SD training imparts knowledge of the content and structures of the MTM-SD process building block system and trains the skills required for its practical application.

Contents

- The process building block system MTM-SD and its construction principles.
- The principles underlying the development and structure of the Standard Data Basic Values (SD-BV) and the General Purpose Data
- The rules for the consistent and correct use of the process building block system MTM-SD
- Practical exercises to consolidate the gained knowledge

Learning objectives

The participant **knows**

- the MTM-SD process building block system and its development,
- the classification of MTM-SD in the Framework of the MTM Process Building Block Systems,
- the principles applied in the development of the process building block system of the Standard Data Basic Values,
- the principles applied in the development of the General Purpose Data, and
- the application requirements for and application areas of MTM-SD.

The participant **is able to** apply MTM-SD in practice, in particular to

- structure, plan, and design processes and work systems,
- describe and evaluate work content,
- improve existing work systems,
- create and describe company-specific process building blocks.

Procedure

MTM-SD on-site attendance courses and webinars may be taught in accordance with the currently valid Qualification Procedures of MTMA (par. 3.3) by a licensed MTM-Instructor only.

As a rule, the number of participants is restricted to 20. Exceptions require prior written consent by the management of MTMA.

Training materials

The mandatory training materials consist of the MTM-SD manual, the data card of the MTM-SD Basic Values, the data cards of the General Purpose Data, daily repetition exercises, and various forms, all published by MTMA. Further teaching aids are the manual-related presentation, the MTM training box, the software TiCon, and films, which are provided together with the related work system descriptions, in accordance with the syllabus.

Duration of training

The MTM-SD training takes 40 hours.

Examination

The MTM-SD training ends with an examination. As an exception, the Examination Board may order an additional oral examination. The examination conditions are defined in par. 3.3.

Certificate

Having passed the MTM-SD exam the candidate receives a certificate. Should the participant have failed the exam, a digital confirmation of participation will be issued instead of the certificate.

4.1.5 MTM-2

Admission requirements

To be admitted to the MTM-2 training the applicant has to have passed the MTM-1 Base exam.

Subject

The MTM-2 training imparts basic knowledge of the theory of the process building block system MTM-2 and develops the skills required for its application.

Contents

- The process building block system MTM-2 and its development
- The principles underlying the development and structure of MTM-2
- The rules for the consistent and correct use of the process building block system MTM-2
- Practical exercises to consolidate the gained knowledge

Learning objectives

The participant **knows**

- the process building block system MTM-2 and its development,
- the classification of MTM-2 in the Framework of the MTM Process Building Block Systems,
- the principles applied in the development of the MTM-2 process building block system, and
- the application requirements for and application areas of MTM-2.

The participant **is able to** apply MTM-2 in practice, in particular to

- structure, plan, and design processes and work systems,
- describe and evaluate work content,
- improve existing work systems,
- create and describe company-specific process building blocks.

Procedure

MTM-2 on-site attendance courses and webinars may be taught in accordance with the currently valid Qualification Procedures of MTMA (par. 3.3) by a licensed MTM-Instructor only.

As a rule, the number of participants is restricted to 20. Exceptions require prior written consent by the management of MTMA.

Training materials

The mandatory training materials consist of the MTM-2 manual, the MTM-2 data card, daily repetition exercises, and various forms, all published by MTMA. Further teaching aids are the manual-related presentation, the MTM training box, the software TiCon, and films, which are provided together with the related work system descriptions, in accordance with the syllabus.

Duration of training

The MTM-2 training takes 40 hours.

Examination

The MTM-2 training ends with an examination. As an exception, the Examination Board may order an additional oral examination. Scoring is done in accordance with par. 3.3.

Certificate

Having passed the MTM-2 exam the candidate receives a certificate. Should the participant have failed the exam, a digital confirmation of participation will be issued instead of the certificate.

4.1.6 MTM-UAS

Admission requirements

To be admitted to the MTM-UAS (Universal Analyzing System) training the applicant has to have passed the MTM-1 Base exam.

Subject

The MTM-UAS training imparts knowledge of the content and structures of the MTM-UAS process building block system for batch production, consisting of the MTM-UAS Basic Operations and the MTM-UAS Standard Operations, and trains the skills required for its practical application.

Contents

- The process building block system MTM-UAS and its development
- Principles of the development, as well as knowledge of the structure and content of the MTM-UAS Basic Operations and the MTM-UAS Standard Operations
- The rules for the consistent and correct use of the process building block system MTM-UAS
- Practical exercises to consolidate the gained knowledge

Learning objectives

The participant **knows**

- the process building block system MTM-UAS and its development,
- the classification of MTM-UAS in the Framework of the MTM Process Building Block Systems,
- the relevance of the method level in process type 2 and its influencing factors, and
- the application requirements for and application areas of MTM-UAS, and
- the principles underlying the development and description of the standard operations in batch production.

The participant **is able to use** the process building block system **MTM-UAS** in practice, in particular to

- structure, plan, and design processes and work systems,
- describe and evaluate work content,
- identify design potential for planning and improve processes and work systems, and
- create and describe company-specific process building blocks.

Procedure

MTM-UAS on-site attendance courses and webinars may be taught in accordance with the currently valid Qualification Procedures of MTMA (par. 3.3) by a licensed MTM-Instructor only.

As a rule, the number of participants is restricted to 20. Exceptions require prior written consent by the management of MTMA.

Training materials

The mandatory training materials consist of the MTM-UAS manual (including the back-up analyses of the MTM-UAS Standard Operations), the MTM-UAS data cards of both the basic operations and the standard operations, daily repetition exercises, and various forms, all published by MTMA. Further teaching aids are the manual-related presentation, the MTM training box, the software TiCon, and films, which are provided together with the related work system descriptions, in accordance with the syllabus.

Duration of training

The MTM-UAS training takes 40 hours.

Examination

The MTM-UAS training ends with an examination. As an exception, the Examination Board may order an additional oral examination. The examination conditions are defined in par. 3.3.

Certificate

Having passed the MTM-UAS exam the candidate receives a certificate. Should the participant have failed the exam, a digital confirmation of participation will be issued instead of the certificate.

4.1.7 MTM-Logistics

The application of the MTM-Logistics Standard Operations requires knowledge of the application of the MTM-UAS Basic Operations. The MTM-UAS Basic Operations are taught in the MTM-UAS training and in the MTM-Logistics training.
Participants who have passed the MTM-UAS exam can directly participate in the shortened MTM-Logistics (Standard Operations) training..

Admission requirements

To be admitted to the MTM-Logistics training the applicant has to have passed the MTM-1 Base exam.

Subject

In the training the participants acquire knowledge of and skills in planning, designing, and optimizing logistical processes. They also gain practical experience in using the MTM-Logistics process building blocks, which were developed on the hierarchic levels of Operation Steps and Operation Sequences in combination with the process building block system MTM-UAS. It is essential that the participant is made familiar with logistics-specific procedures and tools so that he can use them appropriately together with the MTM method to solve time-management tasks in the field of logistics. Apart from teaching theoretical basics, the imparted knowledge is deepened by working on practical examples.

Contents

- The process building block system MTM-UAS and its development
- Principles of the development, as well as knowledge of the structure and content of the MTM-UAS Basic Operations and the MTM-UAS Standard Operations
- Rules for the consistent and correct use of the MTM-UAS Basic Operations
- Principles of the development, as well as knowledge of the structure and content of the MTM-Logistics Standard Operations
- Rules for the consistent and correct use of the MTM-Logistics Standard Operations
- Optimization and design of logistics processes

Learning objectives

The participant **knows**

- the advantages of the MTM application in logistics,
- the classification of MTM-Logistics Standard Operations in the Framework of the MTM Process Building Block Systems,
- the basics of storage and transmission systems in order to select the system most appropriate with respect to methods planning,
- the principles underlying the development and description of the MTM process building blocks for logistics processes.

The participant **is able to** apply the MTM-Logistics Standard Operations in practice, in particular to

- structure, plan, and design logistics processes and work systems,
- Describe and evaluate work content in logistics, using the MTM-Logistics Standard Operations,
- create and describe company-specific process building blocks in logistics, and
- identify design potentials for planning and improve logistics processes and logistics work systems.

Procedure

MTM-Logistics on-site attendance courses and webinars may be taught in accordance with the currently valid Qualification Procedures of MTMA (par. 3.3) by a licensed MTM-Instructor only. Instructors who intend to teach Basics of Ergonomics are granted a special teaching license by MTMA (see 5.2).

As a rule, the number of participants is restricted to 20. Exceptions require prior written consent by the management of MTMA.

Training materials

The mandatory training materials consist of the manual MTM-Logistics (including the back-up analyses of the MTM-Logistics Standard Operations), the MTM-Logistics data cards, daily repetition exercises, and various forms, all published MTMA. Further teaching aids are the manual-related presentation, the software TiCon, and films, which are provided together with the related work system descriptions, in accordance with the syllabus.

Duration of training

The MTM-Logistics training takes 40 hours.

Examination

The MTM-Logistics training ends with an examination. As an exception, the Examination Board may order an additional oral examination. The examination conditions are defined in par. 3.3.

Certificate

Having passed the MTM-Logistics exam the candidate receives a certificate. Should the participant have failed the exam, a digital confirmation of participation will be issued instead of the certificate.

MTM-Logistics (Standard Operations)

Participants who have already completed training in “MTM-UAS” and intend to qualify also in “MTM-Logistics” may attend the training course “MTM-Logistics (Standard Operations)”.

Training in MTM-Logistics (Standard Operations) is offered by MTMA on a regular basis.
To be admitted to the training in MTM-Logistics (Standard Operations) the applicant has to have passed the exam in MTM-UAS. The training deals exclusively with the Logistics Standard Operations and ends with the MTM-Logistics exam. MTM-Logistics Standard Operations training takes 20 hours.

4.1.8 MTM-MEK

Admission requirements

To be admitted to the MTM-MEK (MTM for One-of-a-Kind and Small Variable Batch Production) training the applicant has to have passed the MTM-1 Base exam.

Subject

The MTM-MEK training imparts knowledge of the content and structures of the MTM-MEK process building block system, consisting of the MTM-MEK Basic Operations and the MTM-MEK Standard Operations, as well as the required skills to apply the system.

Contents

- The process building block system MTM-MEK and its development
- Principles of the development, as well as knowledge of the structure and content of the MTM-MEK Basic Operations and the MTM-MEK Standard Operations
- The rules for the consistent and correct use of the process building block system MTM-MEK
- Practical exercises to consolidate the gained knowledge

Learning objectives

The participant **knows**

- the process building block system MTM-MEK and its development,
- the relevance of the method level in process type 3 and its influencing factors,
- the classification of MTM-MEK in the Framework of the MTM Process Building Block Systems,
- the application requirements for and application areas of MTM-MEK, and
- the principles underlying the development and description of the standard operations for process type 3.

The participant **is able to use** the process building block system MTM-MEK in practice, in particular to

- structure, plan, and design processes and work systems,
- describe and evaluate work content,
- identify design potential for planning and improve processes and work systems, and
- create and describe company-specific process building blocks.

Procedure

MTM-MEK on-site attendance courses and webinars may be taught in accordance with the currently valid Qualification Procedures of MTMA (par. 3.3) by a licensed MTM-Instructor only.

As a rule, the number of participants is restricted to 20. Exceptions require prior written consent by the management of MTMA.

Training materials

The mandatory training materials consist of the MTM-MEK manual (including the back-up analyses of the MTM-MEK Standard Operations), the MTM-MEK data cards of both the basic operations and the standard operations, daily repetition exercises, and various forms, all published by MTMA. Further teaching aids are the manual-related presentation, the MTM training box and the software TiCon.

Duration of training

The MTM-MEK training takes 40 hours.

Examination

The MTM-MEK training ends with an examination. As an exception, the Examination Board may order an additional oral examination. The examination conditions are defined in par. 3.3.

Certificate

Having passed the MTM-MEK exam the candidate receives a certificate. Should the participant have failed the exam, a digital confirmation of participation will be issued instead of the certificate.

4.1.9 MTM-Practitioner

The MTM-Practitioner training may take the form of a public or in-house training or coaching on the job (see 3.6).

Admission requirements

To be admitted to the MTM-Practitioner training the applicant has to have passed the exams in MTM-1 Base and in one of the following trainings: MTM-1, MTM-HWD, MTM-2, MTM-SD, MTM-UAS, MTM-Logistics, MTM-MEK, EAWS, or in one of the acknowledged company process building block systems (see 4.2).

In addition, the applicant has to have gained practical experience in the application of the respective MTM process building block systems. Such practical experience may be gained by applying MTM in the company, by independently creating MTM analyses for the description and evaluation of work processes, by identifying analyzing errors or deviations in the individual operator methods from the defined work method, or by revealing improvement potentials.

Subject

The training for MTM-Practitioner provides the participant with the knowledge and practical skills that are required to apply MTM process building blocks for planning, designing, and optimizing business processes and work systems.

Contents

- Basics for the efficient and worker-oriented design of work systems
- Planning, designing, and assessing work systems in terms of productivity, ergonomics, and efficiency
- Comparing solution alternatives and identifying analyzing errors or deviations from (operational) reality, as well as revealing improvement potentials
- Selecting and using appropriate design elements by applying the MTM design catalogue and the guidelines for work design in case studies
- Providing the participants with the required analytical skills, based on selected case studies
- Solving a complex problem in either individual or group work, including the creation of a cost and profitability comparison, presenting the results, and sitting the final exam

Learning objectives

The participant **knows**

- the individual phases in PEP and the holistic design approach inherent in MTM,
- the essential methods and tools that may be applied in designing and optimizing the individual PEP phases, and
- the basics of work design.

The participant **is able to use** the MTM method in practice, in particular to

- plan new work processes and work systems,
- improve existing work systems, and
- select and evaluate design solutions, based on ergonomic and economic criteria.

The participant

- carries through at least a target-performance analysis, based on the respective MTM process building block system, the scope of which should befit the chosen task or the scope of analysis of the respective process building block system,
- recognizes analyzing errors in or deviations from (operational) reality and presents improvement potentials appropriately,
- develops, documents, and implements reasonable measures for work organization and work design for a specific practical problem, for example for the analyzed work system or product, by using the design checklist and the action sheet,
- creates a cost and profitability comparison appropriately and correctly, and
- documents and presents the results in a suitable form.

Procedure

MTM-Practitioner on-site attendance courses and webinars may be taught in accordance with the currently valid Qualification Procedures of MTMA (par. 3.3) by a licensed MTM-Instructor only. Instructors who intend to hold trainings for MTM-Practitioner are granted a special teaching license by MTMA (see 5.2).

As a rule, the number of participants is restricted to 16. Exceptions require prior written consent by the management of MTMA.

A customized training for MTM-Practitioner is principally possible and even desirable. The training must be based, however, on the general conditions as defined in the Qualification Procedures of MTMA. Prior to the start of an in-house training, MTMA has to agree to contents and syllabus. Should the training for MTM-Practitioner be held in-house or should coaching on the job be intended the instructor must be in possession of a valid teaching license for the respective process building block system.

Training materials

Training materials comprise the manuals of the MTM process building block systems (already possessed by the participants) and the MTM-Practitioner manual. Tasks (problems) and case studies are available for public trainings and group work. For in-house trainings for MTM-Practitioner and coaching on the job case studies have to be agreed with MTMA and prepared accordingly. Further teaching aids are the handout-related presentation, the MTM training box, various forms, and films, which are provided together with the related work system descriptions, in accordance with the syllabus, and the software TiCon.

Duration of training

The MTM-Practitioner training takes 40 hours.

Examination and scoring

The training for MTM-Practitioner ends with the presentation of the project results and an examination. As an exception, the Examination Board may order an additional oral examination. The examination conditions are defined in par. 3.3.

For the final presentation the project results are prepared and presented. In the case of in-house trainings and coaching on the job, the presentation with the project results is not transmitted to MTMA.

Certificate

Having passed the MTM-Practitioner exam the candidate receives a certificate. Should the participant have failed the exam, a digital confirmation of participation will be issued instead of the certificate.

4.1.10 "Blue Card" (MTM) – Finalization of the Qualification as MTM-Practitioner

Having passed the exams

- in MTM-1 Base and one of the following trainings: MTM-1, MTM-HWD, MTM-SD, MTM-2, MTM-UAS, MTM-Logistics, MTM-MEK, or in one of the acknowledged company building block systems or

and having

- gained application experience in the respective process building block system, and
- successfully finalized the training for MTM-Practitioner

the candidate is awarded the "Blue Card", the international proof for the candidate's ability to use the MTM method in practice. We recommend acquiring the individual certificates within a maximum of three years.

The "Blue Card" (MTM) is proof of the bearer's ready-to-use knowledge of the MTM method and his ability to make use of this knowledge to design ideal work processes. The "Blue Card" (MTM) is proof of the candidate's practical skills in the correct application of the MTM method.

The "Blue Card" (MTM) lists all MTM process building block systems for which the bearer has obtained a certificate.
The "Blue Card" (MTM) is valid for three years. It can be renewed by attending a public MTM-Practitioner Refresher training, offered by MTMA, or an in-house training. The in-house training may be held by an instructor who possesses a valid teaching license.

4.1.11 MTM-Practitioner Refresher

The MTM-Practitioner Refresher training is available exclusively for the following process building block systems: MTM-1, MTM-HWD, MTM-SD, MTM-2, MTM-UAS, MTM-Logistics, MTM-MEK, and the acknowledged company process building block systems. The MTM-Practitioner Refresher training focusses on the respective process building block system.

Admission requirements

To be admitted to the MTM-Practitioner Refresher training the applicant must be in possession of the "Blue Card" (MTM). In addition, the participant has to present, at the beginning of the training, mandatory analyses, created as specified by MTMA (see Appendix 1).
The "Blue Card" (MTM) may have expired no longer than 12 months. Otherwise, the Examination Board of MTMA will decide in the given case on the conditions for participation, including necessary repetition of parts of the training, e. g. a renewed participation in the training for MTM-Practitioner.

Subject

The MTM-Practitioner Refresher training ensures that the MTM-Practitioner, at a 3-year interval, updates his skills in and knowledge of the MTM application.

Contents

- Further developments in teaching and applying the MTM method
- Analyzing training with a focus on one MTM process building block system
- Sensitization for and avoidance of frequent application errors
- Information about new features and current developments in other MTM process building block systems

Learning objectives

The participant

- knows about further developments in teaching and applying the MTM method,
- knows about frequently occurring application errors and is intent on avoiding them, and
- has gained analyzing experience.

Procedure

MTM-Practitioner Refresher on-site attendance courses and webinars may be taught in accordance with the currently valid Qualification Procedures of MTMA (par. 3.3) only by a licensed MTM-Instructor with a teaching license in the required process building block system. Instructors who intend to hold in-house MTM-Practitioner Refresher trainings or to do coaching on the job, are granted a special teaching license by MTMA (see 5.2). Prior to the start of an in-house training, MTMA must agree to contents and syllabus.

As a rule, the number of participants is restricted to 20. Exceptions require prior written consent by the management of MTMA.

Training materials

There are no particular training materials provided.

Duration of training

The MTM-Practitioner Refresher training takes 20 hours.

The management of MTMA may reduce the duration, depending on the number of participants:

- 1 – 2 participants 8 hours
- 3 – 5 participants 16 hours
- > 5 participants 20 hours

Examination

The MTM-Practitioner Refresher training ends with an examination in the respective MTM process building block system. As an exception, the Examination Board may order an additional oral examination. The examination conditions are defined in par. 3.3.

Having passed the exam in the MTM-Practitioner Refresher training the MTM-Practitioner will get his "Blue Card" (MTM) renewed for **all** process building block systems for which he possesses of a certificate.

Certificate

Having passed the exam in the MTM-Practitioner Refresher training a certificate will be issued and the "Blue Card" (MTM) renewed. Should the participant have failed the exam, and the "Blue Card" (MTM) a digital confirmation of participation will be issued instead of the certificate.

4.1.12 Refreshing one's Application Competence in one of the MTM Process Building Block Systems or in EAWS

As proof of his application competence in one of the MTM process building block system as well as in EAWS receives a certificate. However, should he not finalize the qualification for the "Blue Card" this competence may get lost. It can be regained by participating in a refresher training for one of the MTM process building block systems.

A refresher training is available exclusively for the following process building block systems: MTM-1, MTM-HWD, MTM-SD, MTM-2, MTM-UAS, MTM-Logistics, MTM-MEK, and the acknowledged company-specific process building block systems as well as EAWS. The refresher training focusses on the respective process building block system.

Admission requirements

To be admitted to the refresher training in one of the MTM process building block systems the applicant must have passed the exams in one of the following trainings: MTM-1, MTM-HWD, MTM-2, MTM-SD, MTM-UAS, MTM-Logistics, MTM-MEK, or in one of the acknowledged company-specific process building block systems or EAWS (see 4.2).
In addition, the participant has to present, at the beginning of the training, mandatory analyses, created as specified by MTMA (see Appendix 1).

Subject

The refresher training in one of the MTM process building block systems ensures that the participants update his skills in and knowledge of the MTM application.

Contents

- Further developments in teaching and applying the MTM method
- Analyzing training with a focus on one MTM process building block system
- Sensitization for and avoidance of frequent application errors
- Information about new features and current developments in other MTM process building block systems

Learning objectives

The participant

- knows about further developments in teaching and applying the MTM method,
- knows about frequently occurring application errors and is intent on avoiding them, and
- has gained analyzing experience.

Procedure

Refresher trainings in one of the MTM process building block systems are offered either as on-site attendance courses or as webinars and may be taught in accordance with the currently valid Qualification Procedures of MTMA (par. 3.3) by a licensed MTM-Instructor only with a teaching license in the respective required process building block system. Instructors who intend to hold in-house Refresher in an MTM process building block system trainings are granted a special teaching license by MTMA (see 5.2). Prior to the start of an in-house training, MTMA must agree to contents and syllabus.

As a rule, the number of participants is restricted to 20. Exceptions require prior written consent by the management of MTMA.

Training materials

There are no particular training materials provided.

Duration of training

A refresher training in one of the MTM process building block systems takes 20 hours.

The management of MTMA may reduce the duration, depending on the number of participants:

- 1 – 2 participants 8 hours
- 3 – 5 participants 16 hours
- > 5 participants 20 hours

Examination

The Refresher in an MTM process building block system training ends with an examination in the respective MTM process building block system. This can take the form of a written or digital examination or the presentation of a project work. As an exception, the Examination Board may order an additional oral examination. The examination conditions are defined in par. 3.3.

Certificate

Having passed the exam in the refresher training, a certificate will be issued in the completed MTM process building block system. Should the participant have failed the exam, a digital confirmation of participation will be issued instead of the certificate.

4.2 Qualification as MTM-Practitioner Based on Acknowledged Company-Specific Standard Operations or Company-Specific Process Building Block Systems

4.2.1 Introduction

The qualification as MTM-Practitioner based on one of the acknowledged

a) acknowledged company-specific standard operations

b) acknowledged company-specific process building block systems

is subject to the same regulations that apply to the training for MTM-Practitioner (see 4). Acknowledged company standard operations and company process building block systems are company-specific planning time catalogues or systems with defined application requirements and rules (presented, for example, in a training manual). Their application is restricted to the respective company. Company process building block systems have been acknowledged by MTMA. Due to this acknowledgement, trainings in the company standard operations and company process building block systems are integrated into the Structure of Training of MTMA and are, thus, subject to the Qualification Procedures of MTMA. The company standard operations and company process building block systems are on a higher hierarchic level than the MTM Basic System (MTM-1) and are based on one of the following MTM process building block systems: MTM-1, MTM-SD, MTM-2, MTM-UAS, or MTM-MEK.

Training courses with company standard operations always consist of the original process building block system (e.g., MTM-UAS Basic Operations) and the company standard operations (e.g. standard operations "Assembly"). In contrast, operational process building block systems (e.g., C-Values) are defined as independent process building block systems.

To present, the company process building block systems of the Daimler MB Planned Time Values (C-Values) and the BMW Standard Data (BMW SD) have been acknowledged. The formal decision on the participation in training in these acknowledged company process building block systems is made by the respective company.

To be admitted to the training in a company process building block system, the applicant has to provide evidence (e. g. by means of a certificate) of his knowledge of the underlying MTM process building block system (at least of the motion sequences of the Standard Data Basic Values or the Basic Operations in MTM-UAS or MTM-MEK).

With respect to the training for MTM-Practitioner and MTM-Instructor, a certificate obtained in one of the acknowledged company process building block systems has the same value as a certificate obtained in any of the other MTM process building block systems listed above.

4.2.2 C-Values

The Daimler MB Planned Time Values (C-Values) are based on the MTM Standard Data.

Admission requirements

To be admitted to the C-Values training the applicant has to have passed the MTM-1 Base exam. Another minimum requirement to receive the certificate in C-Values is the participation in two-day training in MTM-SD (Basic Values). This training imparts necessary and profound knowledge of the process building block system MTM-SD, the basis for the C-Values.

Subject

C-Values training imparts knowledge of the content and structures of the process building block system of the C-Values and develops the skills required for its practical application.

Contents

- The C-Values and their development
- The principles underlying the development and structure of the C-Values
- Rules for the consistent and correct use of the C-Values
- Practical exercises to consolidate the gained knowledge

Learning objectives

The participant **knows**

- the company-specific process building block system of the Daimler MB Planned Time Values (C-Values) and its development,
- the classification of the MB Planned Time Values (C-Values) in the Framework of the MTM Process Building Block Systems,
- the principles underlying the development of the process building block system of the MB Planned Time Values (C-Values), and
- the application requirements for and application areas of the MB Planned Time Values (C-Values).

The participant **is able to** apply the MB Planned Time Values (C-Values) in practice, in particular to

- structure, plan, and design processes and work systems,
- describe and evaluate work content,
- improve existing work systems,
- create and describe company-specific process building blocks.

Procedure

C-Values on-site attendance courses and webinars may be taught in accordance with the currently valid Qualification Procedures of MTMA (par. 3.3) by a licensed MTM-Instructor only.

As a rule, the number of participants is restricted to 20. Exceptions require prior written consent by the management of MTMA.

Training materials

The mandatory training materials consist of the MB Planned Time Values (C-Values) manual, the corresponding data cards and forms, all published by Daimler AG.

Duration of training

The C-Values training takes 40 hours.

Examination

Training in the C-Values ends with an examination. As an exception, the Examination Board may order an additional oral examination. The examination conditions are defined in par. 3.3.

Certificate

Having passed the C-Values exam the candidate receives a certificate. Should the participant have failed the exam, a digital confirmation of participation will be issued instead of the certificate.

C-Values User

To be authorized to apply the C-Values in the operational environment of Daimler AG the future user has to have passed the C-Values exam. This is verified by the card "C-Values User" and/ or the C-Values certificate. This is also proof of the user's ability to apply the C-Values for planning, evaluating, and designing processes.

To receive the card "C-Values User" the applicant has minimum to

- participate in the MTM-1 Base training,
- participate in the MTM-SD (Basic Values) training (without examination), and
- pass the C-Values examination.

If these minimum requirements are met, the card "C-Values User" will be issued.

4.2.3 BMW Group SD

The development of the BMW Group Standard Data (BMW Group SD) was based on MTM-1 and MTM-UAS.

The process building block system BMW Group SD consists of:

- BMW Group SD Master Data
- BMW Group SD Multiple Purpose Data
- BMW Group SD Logistics

The respective trainings in BMW Group Standard Data and the integration of the BMW Group Standard Data in the structure of the qualification as MTM-Practitioner and MTM-Instructor, as specified by MTMA, have been defined in the company-specific BMW Group SD training concept. The formal decision on the participation in the training in BMW Group SD is made by the BMW Group. If you have any further questions in this respect, please contact MTMA.

4.3 Qualification as EAWS-Practitioner

The qualification as EAWS-Practitioner addresses all staff members in the company who have to create ergonomic analyses or make ergonomic assessments in their field of work: employees, professional and managerial staff, as well as representatives from the works council and various other interest groups. It also addresses ergonomic officers and staff members who create or assess ergonomic risk analyses in the company, or employees who design, optimize and/ or restructure workplaces in the industrial environment.

The qualification as EAWS-Practitioner starts with the training in EAWS. On successful completion of the training in EAWS, the applicant has to acquire practical experience before he can start his training for EAWS-Practitioner (see Illustration 1).

On successful completion of all required trainings the applicant will receive the "Blue Card" (EAWS), the internationally acknowledged qualification certificate for EAWS-Practitioners. The "Blue Card" is valid for three years.

4.3.1 EAWS

Admission requirements

There are no admission requirements.

We recommend basic knowledge of micro ergonomics (e. g. workplace design), macro ergonomics (e. g. work system design), and behavioral ergonomics (e. g. demands upon man to be able to perform; basic anthropometric aspects; mental aspects; factors concerning the work environment; work design in accordance with ergonomics).

Subject

The training imparts basic knowledge of load assessment with EAWS – for both existing and planned work systems. With EAWS efficient ergonomic risk assessment is possible, based on standardized rules.

Contents

- Selected basics of ergonomics
- EAWS structure, principles and assessment (paper and pencil method)
- Comprehensive assessment of the physical loads on the whole body and the upper limbs
- Integral design of the work system and the related processes, in combination with an ergonomic risk analysis
- Implementation of ergonomic requirements on the design process by proactive ergonomics
- Overview of EAWS degrees ("Blue Card" and "Green Card") and their national and international significance

Learning objectives

The participant **knows**

- the structure of the EAWS method,
- the areas of application and application prerequisites for EAWS,
- the importance of proactive ergonomics in product design and process planning,
- the correlation between ergonomic assessment and process shaping with the help of a process language (preferably MTM), and
- the legal basis for ergonomic assessment.

The participant **is able to**

- create EAWS analyses independently and gains initial experience with the EAWS rules,
- evaluate how to use EAWS appropriately in his professional environment, and
- identify from which advanced training measures he will benefit most in his profession.

Procedure

EAWS on-site attendance courses and webinars may be taught in accordance with the currently valid Qualification Procedures of MTMA (par. 3.3) by a licensed EAWS-Instructor only.

As a rule, the number of participants is restricted to 20. Exceptions require prior written consent by the management of MTMA.

Training materials

The mandatory training materials consist of the EAWS manual, EAWS forms, and daily repetition exercises, all published by MTMA. Further teaching aids are the manual-related presentation, the MTM training box and the software TiCon.

Duration of training

The EAWS training takes 40 hours.

Examination

The EAWS training ends with an examination. As an exception, the Examination Board may order an additional oral examination. Scoring is done in accordance with par. 3.3.

Certificate

Having passed the EAWS exam the candidate receives a certificate. Should the participant have failed the exam, a digital confirmation of participation will be issued instead of the certificate.

4.3.2 EAWS-Practitioner

The EAWS-Practitioner training may take the form of a public or in-house training or coaching on the job (see3.6).

Admission requirements

To be admitted to the EAWS-Practitioner training the applicant has to be in possession of the EAWS certificate; in addition, he has to have gained practical experience in the application of EAWS subsequent to his training in EAWS.

Subject

The training for EAWS-Practitioner provides the participant with the knowledge and practical skills that are required to apply EAWS for planning, designing, and optimizing business processes and work systems

Contents

- Planning, designing, and assessing work systems in terms of productivity, ergonomics, and efficiency
- Basics for the efficient and worker-oriented design of work systems
- EAWS structure, principles, assessment, and practical application
- Comparing solution alternatives and identifying analyzing errors or deviations from (operational) reality, as well as revealing improvement potentials
- Exercises for the comprehensive assessment of the physical loads on the whole body and the upper limbs, based on EAWS
- Implementation of a holistic work system design
- Implementation of ergonomic requirements on the design process by proactive ergonomics
- Selected case studies for the training in risk identification, risk assessment and risk prognosis
- Solving a complex problem in either individual or group work, including the creation of a cost and profitability comparison in an suitable form, presenting the results, and sitting the final exam

Learning objectives

The participant **knows**

- the structure of the EAWS method,
- the areas of application and application prerequisites for EAWS,
- the importance of proactive ergonomics in product design and process planning,
- the correlation between ergonomic assessment and process shaping with the help of a process language (preferably MTM), and
- the legal basis for ergonomic assessment.

The participant **is able to**

- create EAWS analyses independently and polishes his skills in confidently handling the EAWS rules,
- reliably apply the EAWS method to assess ergonomic risks – especially during the operational, product development and process planning phases – and suggested technical and organizational approaches, and
- make use of an EAWS-specific MTM software to support the numerous arithmetic operations required for the analysis of practical examples.

The participant

- carries through at least a target-performance analysis, based on the EAWS method,
- trains the comprehensive assessment of physical loads on the whole body and the upper limbs,
- recognizes assessment errors in or deviations from (operational) reality and presents improvement potentials appropriately,
- develops, documents, and implements sensible work organizational and/ or design measures for a concrete practical task, for example, for the work system or the product in question,
- creates a cost and profitability comparison appropriately and correctly, and
- documents and presents the achieved results in a suitable form.

Procedure

EAWS-Practitioner on-site attendance courses and webinars may be taught in accordance with the currently valid Qualification Procedures of MTMA (par. 3.3) by a licensed EAWS-Instructor only. The instructor must be in possession of a valid EAWS teaching license. Instructors who intend to hold trainings for EAWS-Practitioner are granted a special teaching license by MTMA (see 5.2).

As a rule, the number of participants is restricted to 16. Exceptions require prior written consent by the management of MTMA.

A customized training for EAWS-Practitioner is principally possible and even desirable. The training must be based, however, on the general conditions as defined in the Qualification Procedures of MTMA. Prior to the start of an in-house training, MTMA must agree to contents and syllabus. Should the training for EAWS-Practitioner be held in-house, or should coaching on the job be intended, the company instructor must be in possession of a valid EAWS teaching license.

Training materials

The training material comprise the EAWS manual. Tasks (problems) and case studies are available for public trainings and group work. For in-house trainings for MTM-Practitioner and coaching on the job case studies have to be agreed with MTMA and prepared accordingly. Further teaching aids are a presentation, the MTM training box, various forms, and films, which are provided together with the related work system descriptions, in accordance with the syllabus, and the software TiCon.

Duration of training

The EAWS-Practitioner training takes 40 hours.

Examination and scoring

The EAWS-Practitioner training ends with the presentation of the project results and an examination. As an exception, the Examination Board may order an additional oral examination. The examination conditions are defined in par. 3.3.

For the final presentation the project results are prepared and presented. In the case of in-house trainings and coaching on the job, the presentation with the project results is not transmitted to MTMA.

Certificate

Having passed the EAWS-Practitioner exam the candidate receives a certificate. Should the participant have failed the exam, a digital confirmation of participation will be issued instead of the certificate.

4.3.3 "Blue Card" (EAWS) - Finalization of the Qualification as EAWS-Practitioner

Having passed the EAWS exam and gained application experience and having passed the EAWS-Practitioner exam the candidate is awarded the "Blue Card" (EAWS), the international proof for the candidate's ability to use the EAWS method in practice. We recommend acquiring the individual certificates within a maximum of three years.

The "Blue Card" (EAWS) is proof of the bearer's ready-to-use knowledge of the EAWS method and his ability to make use of this knowledge to assess ergonomic risks.

The "Blue Card" (EAWS) is proof of the candidate's practical skills in the correct application of the EAWS method.

The "Blue Card" (EAWS) is valid for three years. It can be renewed by attending a public EAWS-Practitioner Refresher training, offered by MTMA, or an in-house training. The training may be held by an MTMA instructor or a company instructor who possesses a valid teaching license.

4.3.4 EAWS-Practitioner Refresher

Admission requirements

To be admitted to the EAWS-Practitioner Refresher training the applicant must be in possession of the "Blue Card" (EAWS). In addition, the participant has to present, at the beginning of the training, mandatory analyses, created as specified by MTMA (see Appendix 3).

The "Blue Card" (EAWS) may have expired no longer than 12 months. Otherwise, the Examination Board of MTMA will decide in the given case on the conditions for participation, including necessary repetition of parts of the training, e. g. a renewed participation in the training for EAWS-Practitioner.

Subject

The EAWS-Practitioner Refresher training ensures that the EAWS-Practitioner has, at a 3-year interval, updates and trains his skills in and knowledge of the EAWS application.

Contents

- Further developments in teaching and applying the EAWS method
- Sensitization for and avoidance of frequent application errors
- Additional training in the application of EAWS
- Identification and evaluation of ergonomic influencing factors related to manual activities
- Calculation rules for the creation of ergonomic risk analyses
- Interpretation of the results of ergonomic risk analyses, in particular ergonomic bottlenecks
- Application of sections 0 (extra scores) to 4 (loads of the upper limbs)

Learning objectives

The participant

- knows about further developments in teaching and applying the EAWS method,
- knows about frequently occurring application errors and is intent on avoiding them, and
- has gained application experience with EAWS.

Procedure

EAWS-Practitioner Refresher on-site attendance courses and webinarsmay be taught in accordance with the currently valid Qualification Procedures of MTMA (par. 3.3) by a licensed EAWS-Instructor only. The instructor must be in possession of a valid EAWS teaching license.

Instructors who intend to hold in-house EAWS-Practitioner Refresher trainings are granted a special teaching license by MTMA (see 5.2). In-house EAWS-Practitioner Refresher trainings require the instructor to be in possession of a valid EAWS teaching license.

As a rule, the number of participants is restricted to 20. Exceptions require prior written consent by the management of MTMA.

Training materials

There are no particular training materials provided.

Duration of training

The EAWS-Practitioner Refresher training takes 20 hours.

The management of MTMA may reduce the duration, depending on the number of participants:

- 1 – 2 participants 8 hours
- 3 – 5 participants 16 hours
- > 5 participants 20 hours

Examination

The EAWS-Practitioner Refresher training ends with an examination. As an exception, the Examination Board may order an additional oral examination. The examination conditions are defined in par. 3.3.

The candidate must pass this exam to have his "Blue Card" (EAWS) renewed for another three years.

Certificate

Having passed the exam in the EAWS-Practitioner Refresher training a certificate will be issued and the "Blue Card" (EAWS) renewed. Should the participant have failed the exam, a digital confirmation of participation will be issued instead of the certificate and the "Blue Card" (EAWS).

5 Qualification as Instructor

The training as Instructor qualifies instructors for the dissemination of the MTM method, the Ergonomic Assessment tool EAWS, and ProKon. The instructor is an experienced practitioner, who avails of the didactic skills to pass on his knowledge and, thus, contributes to the dissemination of the MTM and EAWS methods. The instructor is the contact person for all questions related to the application and implementation of these methods in the company.

The qualification as instructor is composed of a didactic and a technical part.

- The **didactic part** is taught in the trainings for MTM-Instructor and EAWS-Instructor.
- The **technical part** is taught in at least one license course and, if applicable, in additionally required further training courses.

Note
Participants who have already qualified as either MTM-Instructor or EAWS-Instructor have to attend "only" the required license courses to qualify as the respective "other" instructor.

Having successfully completed the technical part and having been granted a teaching license (the "Green Card") the instructor is authorized to hold MTM and EAWS training courses.

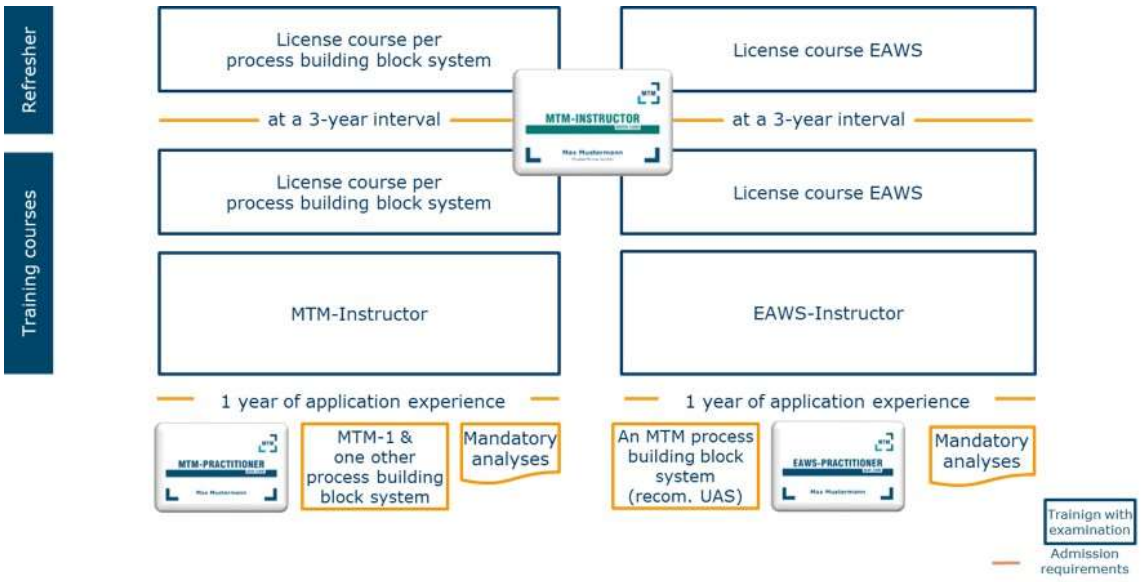

Illustration 2: Structure of the training for MTM-Instructor and EAWS-Instructor

The "Green Card" contains all valid teaching licenses for the MTM process building block systems, EAWS and the special teaching licenses.

5.1 Teaching License

Requirements for being granted a teaching license:

- Certificate obtained in the respective license course
- The company that employs the instructor is a member of MTMA or by one of the MTM-One partners.

The "Green Card", which is valid for three years, is proof of the teaching license. It is an integral part of the employment relationship and authorizes the bearer to teach MTM or EAWS trainings at the member company of MTMA, or when being ordered to do so by MTMA.

The teaching license authorizes the bearer to teach, in accordance with the Qualification Procedures of MTMA, the process building block systems that his "Green Card" contains, or trainings in EAWS.

The teaching license will be renewed automatically, if, three years later, the candidate passes the exam in the license course for the respective process building block system and is still employed by a member company of MTMA.

The "Green Card" may have expired no longer than 12 months. Otherwise, the Examination Board of MTMA will decide in the given case on the conditions for participations, including necessary repetition of parts of the training.

5.2 Special License

For all trainings (both in-house and public) for which no license courses are available, the management of MTMA will grant a special license.

5.2.1 MTM-Practitioner and MTM-Practitioner Refresher Training as well as Refresher Trainings in one of the MTM Process Building Block Systems or EAWS

A special teaching license for MTM-Practitioner and MTM-Practitioner Refresher trainings as well as refresher trainings in one of the MTM process building block systems or EAWS may be granted by the management of MTMA. To be admitted to the refresher training, the candidate has to be in possession of a valid teaching license for the required MTM process building block system and has to have attended the MTM-Practitioner license course. The MTM-Practitioner license course takes 8 hours and is part of the training for MTM-Practitioner.. The special teaching license for MTM-Practitioner is valid as long as the acquired individual teaching licenses are valid. To carry through an MTM-Practitioner or MTM-Practitioner Refresher training or a refresh-er training in one of the MTM process building block systems or EAWS the instructor must be in possession of a valid teaching license in the respective MTM process building block system.

5.2.2 Instructor for EAWS-Practitioner Trainings, EAWS-Practitioner Refresher Trainings and EAWS Refresher EAWS Trainings

For the training for EAWS-Practitioner and EAWS-Practitioner as well as EAWS Refresher training the management of MTMA will grant a special license to EAWS-Instructors who are in possession of a valid teaching license. This special license is valid until revoked. To be granted this special license, the applicant is obliged to agree, prior to conducting the first training, the contents and didactic aspects with the management of MTMA. Sitting-in on classes in MTM- and EAWS-Practitioner is recommended. The special teaching license for EAWS-Practitioner, EAWS-Practitioner Refresher and Refresher EAWS is valid as long as the acquired individual teaching licenses in EAWS are valid.

5.2.3 ProKon-Instructor

A special license for the training in ProKon may be granted by the management of MTMA solely to MTM-Instructors who are in possession of at least one valid teaching license, who have successfully completed the training in ProKon, and who have gained experience in the application of ProKon. This special license is valid until revoked.

5.2.4 MTM-Logistics

A special license for the trainings MTM-Logistics and MTM-Logistics (Standard Operations) may be granted by the management of MTMA solely to MTM-Instructors who are in possession of valid MTM-1 and MTM-UAS teaching licenses, who have successfully completed the training in MTM-Logistics, and who have gained experience in the application of the MTM-Logistics Standard Operations. This special license is valid until revoked.

5.2.5 One-MTM Master Instructor

One-MTM Master Instructors are MTM- or EAWS-Instructors from a One-MTM Partner, a One-MTM Associate Partner, or a One-MTM Global Partner.

To ensure a worldwide uniform quality standard in teaching MTM, MTMA offers special training courses for the qualification as One-MTM Master Instructor. These courses are held in line with the rules specified in APO for license courses in the respective MTM process building block systems.

The One-MTM Master Instructor has to ensure that the uniform rules for teaching MTM, as defined in APO, are applied in her/ his organization.

5.3 Pioneer Instructor

It is possible to apply for a Pioneer Teaching License (“Green Card” with the note “Pioneer License”) for a newly developed system by an informal request to MTMA.

The basic requirement to be granted a Pioneer teaching license (for a new system) is that the applicant holds a valid teaching license. In addition, active participation in the development of the new system and successful completion of the training in the new system are required. The Pioneer License is valid three years or until the first license course comes about.

The intention of the Pioneer Teaching License is to train the first instructors for a new process building block system already during the development of this new system, and, thus, support its promotion. Also, the pioneer instructors are expected to work out a uniform training concept (standardization of examination questions, etc.). In other words, in this first license course the pioneer instructors (and exclusively they) establish this uniformity through their participation and, by this, gain a full teaching license for the new process building block system.

5.4 Emeritus Instructors

It is possible to apply for an Emeritus Teaching License by an informal request to MTMA. Having examined the request, the management of MTMA may grant the status of "Emeritus Instructor".

The status of "Emeritus-Instructor" will be granted on the basis of the criteria listed below:

- The applicant has to be retired and in possession of at least one valid teaching license, and wants to act, on his own accord, as an MTM-/ EAWS-Instructor for MTMA or a One-MTM Network partner organization.
- In his active professional life, the instructor carried through MTM training courses for MTMA or another One-MTM Network partner organization and/ or was ordered to do so by MTMA or another One-MTM network partner organization.

For the renewal of Emeritus-Instructor teaching licenses, the same rules apply as for all other teaching licenses granted by MTMA.

Emeritus-Instructors may act as instructors exclusively by order of MTMA or another One-MTM Network partner organization.

5.5 MTM-Instructor

5.5.1 MTM-Instructor

Admission requirements

To be admitted to the MTM-Instructor training the applicant has to have passed the exams in MTM-1 and in one of the following trainings: MTM-HWD, MTM-SD, MTM-2, MTM-UAS, MTM-MEK, EAWS, or in one of the acknowledged company process building block systems.

Moreover, participation in the training for MTM-Instructor requires

- a valid proof of qualification, i.e. the "Blue Card" (MTM) and
- at least one year of practical experience in the application of the MTM method after obtaining the "Blue Card".

In addition, the participant has to present, at the beginning of the training, mandatory analyses in MTM-1, created as specified by MTMA (see Appendix 2).

Subject

Based on the process building block system MTM-1 the training for MTM-Instructor imparts knowledge and skills required to obtain the MTM teaching license.

On the one hand, the training for MTM-Instructor consolidates the knowledge of MTM-1 as basic knowledge for the MTM method and promotes the skills to argument for an across-the-board application in productivity management. On the other hand, the future instructor gets familiar with the methodical-didactic basics required to impart the knowledge of MTM. He can then directly use this basic knowledge in a license course for instructors and experience its application in the actual teaching situation.

Contents

- Basic knowledge of MTM in productivity management
- Knowledge of the structure of the MTM training measures, of the currently valid training materials, and the valid Qualification Procedures
- Development and consolidation of didactic skills
- Training in using didactic techniques and tools (MTM training box, media, such as presentations, flipcharts, and films, as well as group and individual work, performance of a demonstration lesson)
- Organization and formal preparation, execution, and follow-up measures of public and in-house courses

Learning objectives

The participant **knows**

- the classification of MTM in productivity management and PEP,
- the structure of MTM trainings and the Framework of the MTM Process Building Block Systems,
- the Qualification Procedures,
- the main training materials and how to use them effectively,
- the types of teaching and learning, and how to prepare and conduct trainings in MTM accordingly,
- about the various teaching media and how to use them appropriately, and
- that participants may behave in different ways and how to handle relevant situations in class due to his experience.

The participant **is able to**

- systematically plan, work out, and perform a teaching unit,
- develop learning objectives and check the students' learning progress, and
- explain the structure of MTM trainings and the Framework of the MTM Process Building Block Systems.

The participant

- realizes that a teaching unit can be systematically prepared, even has to, in order to be successful, and
- gains confidence by preparatory exercises and demonstration lessons.

Procedure

MTMA offers the training for MTM-Instructor at least once a year. It may be taught in accordance with the Qualification Procedures of MTMA by a licensed MTM-Instructor only. In addition, the licensed MTM-Instructor has to

- have at least three years of practical experience in applying the MTM systems,
- hold teaching licenses for MTM-1, MTM-SD, MTM-2, MTM-UAS, MTM-MEK, ProKon and, where applicable, the acknowledged company process building block systems,
- avail of several years of experience in MTM trainings offered by MTMA, and
- be-working for MTMA or a One-MTM partner

As a rule, the number of participants is restricted to eight. Exceptions require prior written consent by the management of MTMA.

Training materials

The mandatory training materials consist of the MTM-Instructor manual, the MTM-1 manual, the related presentation, the MTM-1 data card (MTM Standard Times data card), daily repetition exercises, various forms, all published by MTMA, and the currently valid Qualification Procedures of MTMA. Further teaching aids are the MTM training box, the software TiCon, and films, all of which are provided together with the related work system descriptions, in accordance with the syllabus.

Duration of training

The MTM-Instructor training takes 40 hours.

The management of MTMA may reduce the duration, depending on the number of participants:

- 1 – 2 participants 24 hours
- 3 – 5 participants 32 hours
- > 5 participants 40 hours

Examination

The exam consists of a written or digital and an oral part. Apart from MTM-1 analyses for the individual sections, the written or digital part may include general questions on MTM in productivity management. The oral part consists of a demonstration lesson based on a previously written description of a teaching unit. In the demonstration lesson the future instructor gives proof of his technical and didactic skills. As an exception, the Examination Board may order an additional oral examination. The examination conditions are defined in par. 3.3.

Certificate

Having passed the MTM-Instructor exam, the candidate receives the corresponding certificate, issued by MTMA. This certificate is proof that its bearer avails of the knowledge and skills required to teach the MTM method and, thus, fulfills the admission requirements for the MTM License Courses to be awarded the MTM Instructor Diploma.

5.5.2 License Courses for MTM-Instructors

To obtain or renew an Instructor Diploma for teaching MTM-1 (or MTM-1 Base), MTM-HWD, MTM-SD, MTM-2, MTM-UAS, MTM-MEK, as well as the acknowledged company process building block systems, the candidate must complete a process-building-block-specific license course for MTM-Instructors in the respective system. It is recommended that the MTM-Instructor, who already is in possession of a teaching license for one or more higher aggregated process building block systems, in addition acquires to the teaching license in MTM-1.

Admission requirements

The candidate either holds an MTM-Instructor certificate or is in possession of a valid "Green Card" that includes the teaching license for at least one process building block system. In addition, the participant has to present, at the beginning of the training, mandatory analyses in the corresponding process building block system, created as specified by MTMA (see Appendix 2). Alternatively, the candidate may furnish proof of having taught at least five trainings in the corresponding process building block system over the past three years.

The company that employs the instructor has to be a member of MTMA.

Special admission requirements

Participation in a license course in one of the acknowledged company process building block systems requires a valid teaching license for the underlying MTM process building block system.

An active MTM-Instructor is not required to have his "Blue Card" (MTM) renewed as MTM-Practitioner; his "Green Card" replaces it.

An MTM-Instructor, who no longer wishes to work as an instructor, but wants to remain an MTM-Practitioner, may attend an MTM-Practitioner Refresher training as long as his "Green Card" has not expired more than three years ago.

Subject

The license courses for MTM-Instructors are meant to ensure that the MTM-Instructor, at a three-year interval, renews his teaching license and is informed about innovations and new features and developments.

Contents

- Knowledge of the classification of MTM in productivity management
- Information on further developments in teaching and applying the MTM method
- Refreshing the knowledge of MTM-1
- Familiarization with new or further developed training and teaching materials for the respective process building block system
- Demonstration lesson
- Refreshing the knowledge of the respective process building block system plus intensive training
- Information about organizational and international developments
- Standardized international tenets

Learning objectives

The participant

- deepens his knowledge of the classification of MTM in productivity management,
- gets information on further developments in teaching and applying the MTM method,
- renews his knowledge of MTM-1,
- gets familiar with new or further developed training and teaching materials for the respective process building block system,
- performs a demonstration lesson, and
- receives intensive training in the respective MTM process building block system.

Procedure

At least once a year, MTMA offers a license course for instructors who have qualified in the process building block systems MTM-1, MTM-HWD, MTM-SD, MTM-2, MTM-UAS, MTM-MEK, and in the acknowledged company process building block systems. It may be taught in accordance with the Qualification Procedures of MTMA by a licensed MTM-Instructor only. The licensed MTM-Instructor has to

- have at least three years of practical experience in applying the MTM method,
- hold teaching licenses for MTM-1, MTM-SD, MTM-2, MTM-UAS, MTM-MEK, ProKon and, where applicable, the acknowledged company process building block systems,
- avail of several years of experience in MTM trainings offered by MTMA, and
- be-working for MTMA or a One-MTM partner

As a rule, the number of participants is restricted to 12. Exceptions require prior written consent by the management of MTMA.

Training materials

The mandatory training materials for the corresponding license course consist of the training manual, the related presentation, the data cards, daily repetition exercises, various forms, all published by MTMA, and the currently valid Qualification Procedures of MTMA. Further teaching aids are the MTM training box, the software TiCon, and films, all of which are provided together with the related work system descriptions, in accordance with the syllabus.

Duration of training

The license course for MTM-Instructors takes 20 hours.

The management of MTMA may reduce the duration, depending on the number of participants:

-	1 – 2 participants	8 hours
-	3 – 5 participants	16 hours
-	> 5 participants	20 hours

Examination

The respective training ends with a written examination. As an exception, the Examination Board may order an additional oral examination. The examination conditions are defined in par. 3.3.

Certificate

The candidate has to pass the exam to receive a certificate or to be awarded or to renew the teaching license (“Green Card”) for three years. Should the participant have failed the exam, a digital confirmation of participation will be issued instead of the certificate.

5.6 EAWS-Instructor

5.6.1 EAWS-Instructor

Admission requirements

Participation in the EAWS-Instructor training requires

- Valid "Blue Card" (EAWS) and a certificate in one MTM process building block system (recommended MTM-UAS)
- At least one year of practical experience in the application of the EAWS method after obtaining the "Blue Card" (EAWS), and
- The presentation of mandatory analyses created as specified by MTMA (see Appendix 3).

Subject

EAWS-Instructor training imparts knowledge and skills required to obtain the EAWS teaching license.

On the one hand, the training for EAWS-Instructor consolidates the knowledge of EAWS. On the other hand, the future instructor gets familiar with the methodical-didactic basics required to impart the knowledge of EAWS. He can then directly use this basic knowledge of an EAWS license course and experience its application in the actual teaching situation.

Contents

- MTM methods in productivity management
- Structures of the MTM training measures, the valid training materials, and the currently valid Qualification Procedures
- Development and consolidation of didactic skills
- Training in using didactic techniques and tools (MTM training box, media, such as presentations, flipcharts, and films, as well as group and individual work, performance of a demonstration lesson)
- Organization and formal preparation, execution, and follow-up measures of public and in-house courses
- Sensitization for frequently occurring application errors in the creation of EAWS analyses

Learning objectives

The participant **knows**

- the structure of MTM trainings and the Framework of the MTM Process Building Block Systems,
- the Qualification Procedures,
- the main training materials and how to use them effectively,
- the types of teaching and learning, and how to prepare and conduct trainings in EAWS accordingly,
- about the various teaching media and how to use them appropriately, and
- that participants may behave in different ways and how to handle relevant situations in class due to his experience.

The participant **is able to**

- systematically plan, work out, and perform a teaching unit,
- develop learning objectives and check the students' learning progress, and
- explain the structure of MTM trainings and the Framework of the MTM Process Building Block Systems.

The participant

- realizes that a teaching unit can be systematically prepared, even has to, in order to be successful, and
- gains confidence by preparatory exercises and demonstration lessons.

Procedure

MTMA offers the EAWS-Instructor training at least once a year. It may be taught in accordance with the currently valid Qualification Procedures of MTMA by a licensed EAWS-Instructor only. The licensed EAWS-Instructor has to

- have at least three years of practical experience in applying the EAWS system,
- hold teaching licenses for MTM-SD, MTM-2, MTM-UAS, MTM-MEK, ProKon, EAWS and, where applicable, the acknowledged company process building block systems,
- avail of several years of experience in trainings offered by MTMA,
- be an MTM-Instructor with a valid "Green Card", and
- be-working for MTMA or a One-MTM partner

As a rule, the number of participants is restricted to eight. Exceptions require prior written consent by the management of MTMA.

Training materials

The mandatory training materials consist of the EAWS-Instructor manual, the EAWS manual, the related presentation, all published by MTMA, and the currently valid Qualification Procedures of MTMA. Further teaching aids are the MTM training box, the software TiCon, and films, all of which are provided together with the related work system descriptions, in accordance with the syllabus.

Duration of training

The EAWS-Instructor training takes 40 hours.

The management of MTMA may reduce the duration, depending on the number of participants:

- 1 – 2 participants 24 hours
- 3 – 5 participants 32 hours
- > 5 participants 40 hours

Examination

The exam consists of a written or digital and an oral part. The oral part consists of a demonstration lesson based on a previously written description of a teaching unit. In the demonstration lesson the future instructor gives proof of his technical and didactic skills. As an exception, the Examination Board may order an additional oral examination. The examination conditions are defined in par. 3.3.

Certificate

Having passed the EAWS-Instructor exam, the candidate receives the corresponding certificate, issued by MTMA. It is proof that its bearer avails of the knowledge and skills required to teach the EAWS method and fulfills the admission requirements for the License Course EAWS to be awarded the EAWS teaching license.

5.6.2 License Course EAWS

To be awarded or to renew the teaching license for the EAWS method, the candidate has to complete the License Course EAWS successfully.

Admission requirements

The candidate either holds an EAWS-Instructor certificate or is in possession of a valid "Green Card" (EAWS). In addition, the participant has to present, at the beginning of the license course, mandatory analyses, created as specified by MTMA (see Appendix 3). Alternatively, the candidate may furnish proof of having taught EAWS at least five times over the past three years.

The company, by which the instructor is employed, is a member of MTMA.

An active EAWS-Instructor is not required to have his "Blue Card" (EAWS) renewed; his "Green Card" replaces it.

An EAWS-Instructor, who no longer wishes to work as an instructor, but wants to remain an EAWS-Practitioner, may attend an EAWS-Practitioner Refresher training as long as his "Green Card" has not expired more than three years ago.

Subject

EAWS license courses are meant to ensure that the EAWS-Instructor, at a three-year interval, renews his teaching license and is informed about innovations and new features and developments.

Contents

- Update of the knowledge of EAWS
- Information on further developments in teaching and applying the EAWS method
- Familiarization with new or further developed EAWS training and teaching materials
- Training in conducting an EAWS training (demonstration lesson)
- Refreshing the knowledge of the EAWS method and intensive training

Learning objectives

The participant

- deepens his knowledge of the EAWS method,
- gets information on further developments in teaching and applying the EAWS method,
- is made familiar with newly or further developed training materials for EAWS,
- performs a demonstration lesson, and
- receives intensive training in EAWS.

Procedure

MTMA offers the License Course EAWS at least once a year. It may be taught in accordance with the currently valid Qualification Procedures of MTMA by a licensed EAWS-Instructor only. The licensed EAWS-Instructor has to

- have at least three years of practical experience in applying the EAWS system,
- be in possession of an EAWS teaching license and avail of several years of experience in teaching EAWS courses,
- be an MTM-Instructor with a valid "Green Card", and
- be-working for MTMA or a One-MTM partner

As a rule, the number of participants is restricted to 12. Exceptions require prior written consent by the management of MTMA.

Training materials

The mandatory training materials consist of the EAWS manual, the related presentation, all published by MTMA, and the currently valid Qualification Procedures of MTMA. Further teaching aids are the MTM training box, the software TiCon, and films, all of which are provided together with the related work system descriptions, in accordance with the syllabus.

Duration of training

The license course for EAWS-Instructor takes 24 hours.

The management of MTMA may reduce the duration, depending on the number of participants:

- 1 – 2 participants 8 hours
- 3 – 5 participants 16 hours
- > 5 participants 24 hours

Examination

The training ends with an examination. As an exception, the Examination Board may order an additional oral examination. The examination conditions are defined in par. 3.3.

Certificate

The candidate has to pass the exam to receive a certificate or to be awarded or to renew the EAWS teaching license ("Green Card") for three years. Should the participant have failed the exam, a digital confirmation of participation will be issued instead of the certificate.

6 Further Trainings

6.1 ProKon

The ProKon (Produktionsgerechte Konstruktion, German for Production-Oriented Design) training addresses product designers, developers, planners, and IE staff who, due to their respective product-related tasks, have a significant influence on future production times and costs.

Admission requirements

There are no admission requirements.
To intensify the practical benefit, the participants are requested to bring products (samples) or design examples from their respective companies.

Subject

Participants in the training learn how to use ProKon during the development phase to evaluate the ease of assembly of design alternatives. Based on influencing factors it is possible to identify assembly interferences. The training imparts basic knowledge that is deepened by practical examples. Solution alternatives are developed for these examples and are then evaluated with respect to their ease of assembly.

Contents

- Structure of the ProKon analyzing form (manual and automated assembly) and explanation of its use
- Essential rules for the consistent and correct application of ProKon
- Simple practical exercises and practical examples to consolidate the gained knowledge

Learning objectives

The participant **knows**

- the criteria for the design of easy-to-assemble products,
- the interferences that may occur during assembly owing to the product design; these interferences are classified with respect to manual or automated assembly.

The participant **is able to**

- structure a product in such a way that a ProKon analysis can be created,
- use ProKon for the design of easy-to-assemble products,
- quantify, based on ProKon analyses, design variants for manual and/ or automated assemblies, and suggest target-oriented design solutions, and
- define project targets for the design of easy-to-assemble products.

Procedure

ProKon on-site attendance courses and webinars may be taught in accordance with the currently valid Qualification Procedures of MTMA (par. 3.3) by a licensed MTM-Instructor only. Instructors who intend to hold ProKon trainings are granted a special teaching license by MTMA (see 5.2).

As a rule, the number of participants is restricted to 12. Exceptions require prior written consent by the management of MTMA.

Training materials

The mandatory training materials consist of the ProKon manual, a related presentation, and the ProKon Analysis Sheets, all published by MTMA. During the training the participant is given the possibility to use a trail version of the software tool TiCon on his own laptop.

Duration of training

The ProKon training takes 16 hours.

Score

Training in ProKon is team-oriented.

Certificate

Based on their active participation in the team the participants receive a certificate.

6.2 Process Architecture

The Process Architecture training addresses professional and managerial staff from IE, planning, time management, and organization.

Admission requirements

To be admitted to the Process Architecture training the applicant has to have passed the exams in MTM-1 Base and in one of the following trainings: MTM-1, MTM-HWD, MTM-2, MTM-SD, MTM-UAS, MTM-Logistics, MTM-MEK, EAWS, or in one of the acknowledged company process building block systems (see 4.2).

Subject

The training imparts knowledge and skills required to use product-specific process building blocks correctly in practical work. At various hierarchic levels, not only product-neutral but also product-specific process building blocks are developed, which are then used, for example, for product calculations or the determination of staff demand. The resulting planning times data bases have a modular structure, are transparent, and easy to maintain and use. In the training, related case studies are dealt with, using appropriate software tools.

Contents

- Objectives of and demands on a company-specific process building block system
- Definition of application levels with respect to data transfer to other systems
- Determination of the required number of process building blocks, based on the product structure
- Development of company-specific process building blocks
- Principles of process building block creation
- Identification of influencing factors, as well as reference values and reference quantities
- Coding scheme
- Creation of documents for process planning (e. g. time calculation sheets, data cards)

Learning objectives

The participant **knows**

- the importance of the application levels of different process building block systems
- the principles applied in the development of process building blocks, and
- the relevance of a coding structure.

The participant **is able to**

- to create process building block structures as basis for company-specific process building block systems,
- develop process planning documents, and
- apply the coding structure.

Procedure

Process Architecture on-site attendance courses and webinars may be taught in accordance with the currently valid Qualification Procedures of MTMA by either an instructor who is full-time employed by MTMA or a member of or a person authorized by the management of MTMA. Instructors who intend to teach Basics of Ergonomics are granted a special teaching license by MTMA (see 5.2).

As a rule, the number of participants is restricted to 12. Exceptions require prior written consent by the management of MTMA.

Training materials

The mandatory training materials consist of the manual Process Architecture and the Guidelines for the Coding of MTM Process Building Blocks, both MTMA. Further support is provided by a presentation, forms, a product model, and films on case studies.

Duration of training

The Process Architecture training takes 24 hours.

Score

Training in Process Architecture is team-oriented.

Certificate

Based on their active participation in the team the participants receive a certificate.

6.3 MTM and Value Stream

MTM and Value Stream training addresses professional and managerial staff from IE and logistics.

Admission requirements

There are no admission requirements. However, basic knowledge in MTM – in particular in the process building block system MTM-UAS – is recommended, and the participant should be familiar with the application fields and methods in IE, such as Lean Management, Just in Time, and KANBAN.

Subject

- Identification and avoidance of waste
- Application of the value-stream method to improve assembly and logistics processes, and to design work systems, material information flow, and productivity on the basis of a given standard performance
- Recognition of the importance of the method pair MTM and Value Stream

Contents

- How are MTM and Value Stream defined?
- Which are the phases in a value stream project?
- How does the combination of MTM and Value Stream function?
- What are the similarities, what the differences?
- What are the synergy effects?
- How is a "lean company" characterized?

Practical use in the business game "Light Factory"

- Extended value stream analysis
- From push to pull principle (one-piece-flow, KANBAN)
- Synchronization with marginal cycle time losses, based on customer cycles
- Identification, quantification, and avoidance of waste
- Compliance with the zero-error principle
- Identification and quantification of improvement potential through the use of the MTM method
- Planning and designing ideal assembly and logistics processes
- Implementation of the target value stream

Learning objectives

The participant **knows**

- the mutual influence of overall value stream and partial value stream,
- how to assess production and logistics processes MTM-based,
- the advantages of an extended value stream analysis for the evaluation and disclosure of logistics indexes, and
- the basics of value stream analysis and value stream design.

The participant **is able to**

- make use of the appropriate tools for value design,
- draw an extended value stream,
- create a value stream analysis, and
  make use of value stream and MTM analyses for process evaluation and process design.

Procedure

MTM and Value Stream on-site attendance courses and webinars may be taught in accordance with the currently valid Qualification Procedures of MTMA by either an instructor who is full-time employed by MTMA or a member of or a person authorized by the management of MTMA. Instructors who intend to hold trainings in MTM and Value Stream are granted a special teaching license by MTMA (see 5.2).

As a rule, the number of participants is restricted to 12. Due to the intended group work and the case studies, exceptions to this rule are not possible.

Training materials

The mandatory training materials consist of the MTM and Value Stream manual, the Value Stream data card, the MTM-UAS manual (Basic Operations), and the data card of the MTM-UAS Basic Operations, all published by MTMA. Further teaching aids are the manual-related presentation, a complex case study, and the MTM Value Stream training box.

Duration of training

MTM and Value Stream training takes 24 hours.

Examination

Training in MTM and Value Stream ends with an examination consisting of a written exam and a final presentation by each work group. As an exception, the Examination Board may order an additional oral examination. Scoring is done in accordance with par. 3.3.

Certificate

Having passed the exam in Ergonomic Assessment with MTM the candidate receives a certificate. Should the participant have failed the exam, a digital confirmation of participation will be issued instead of the certificate.

6.4 MTM Visual Inspection

MTM Visual Inspection training addresses persons who are involved in the planning, setting up, and time-related evaluation of visual inspection workplaces.

Admission requirements

There are no admission requirements. However, previous participation in the training in MTM-1 Base is recommended.

Subject

MTM Visual Inspection is a method to analyze industrial inspection jobs. In a visual inspection job the inspection field size, eye focus and eye shift, seeing, perceiving, deciding, etc. are observed. In developing the data, the latest ergonomic and medical findings were taken into consideration. Based on examples from practical work, the participant gets acquainted with the application rules.

Contents

- Insight into the historical development of MTM Visual Inspection
- Basic knowledge of the functionality and performance of the human eye
- Information on the design of inspection conditions, the description of inspection tasks, the duration and frequency of inspection jobs, the creation of work instructions, and the use of optical tools or aids
- Rules for the consistent and correct use of the process building block system MTM Visual Inspection
- Simple practical exercises in the application of the process building block system MTM Visual Inspection

Learning objectives

The participant **knows**

- the basic aspects of the functionality and performance of the human eye and learns about visual perception,
- the structure of the process building block system MTM Visual Inspection and how to use it, and
- the main aspects relevant for the design of visual inspection jobs.

The participant **is able to**

- describe visual inspection jobs,
- analyze visual inspection activities,
- create work instructions for visual inspection jobs and instruct accordingly.

Procedure

MTM Visual Inspection on-site attendance courses and webinars are taught in accordance with the currently valid Qualification Procedures of MTMA by an instructor who is full-time employed by MTMA. Instructors who intend to hold trainings in MTM Visual Inspection are granted a special teaching license by MTMA (see 5.2).

As a rule, the number of participants is restricted to ten. Exceptions require prior written consent by the management of MTMA.

Training materials

The mandatory training materials consist of the manual MTM Visual Inspection and the MTM Visual Inspection data card, all published by MTMA. Further teaching aids are the manual-related presentation and special forms.

Duration of training

The MTM Visual Inspection training takes 24 hours.

The management of MTMA may reduce the duration, depending on the number of participants:

- 1 – 5 participants 16 hours
- > 5 participants 24 hours

Score

Training MTM Visual Inspection is team-oriented.

Certificate

Based on their active participation in the team the participants receive a certificate.

6.5 Basics of Ergonomics

Basics of Ergonomics training addresses persons who are in charge of the design, optimization, and restructuring of workplaces or equipment in the industrial environment.

Admission requirements

There are no admission requirements.

Subject

The training imparts basic knowledge of micro ergonomics (e. g. workplace design), macro ergonomics (e. g. work system design), and behavioral ergonomics.

Contents

Training in Basics of Ergonomics deals with the anthropometric basics relevant for workplace design and possible environmental influences on man. The causes for physical or mental loads on man are dealt with explicitly.

- Man and ergonomics
- Work environment – influencing factors affecting the human organism
- Work organization from an ergonomic point of view
- Introduction to ergonomic assessment methods
- Profitability analysis of ergonomic measures

Learning objectives

The participant **knows**

- the scope of ergonomics and its related areas,
- the influencing factors affecting man in the work environment,
- the intention of ergonomic design,
- the basic conditions for human work performance,
- the indexes of anthropometric work design,
- the demands on the man-machine interface,
- the essential factors concerning the work environment, and
- the aspects of work organization relevant to avoid ergonomic risks.

The participant **is able to**

- detect ergonomic risks,
- differentiate between micro, macro, and behavioral ergonomics,
- systematically approach the design of workplaces, and
- appreciate the importance of holistic design.

Procedure

Basics of Ergonomics on-site attendance courses and webinars are taught in accordance with the currently valid Qualification Procedures of MTMA by an instructor who is full-time employed by MTMA. Instructors who intend to teach Basics of Ergonomics are granted a special teaching license by MTMA (see 5.2).

As a rule, the number of participants is restricted to 20. Exceptions require prior written consent by the management of MTMA.

Training materials

The use of the manual Basics of Ergonomics, published by MTMA, is mandatory. Further teaching aids are the manual-related presentation and special exercises in measuring the ergonomic influencing factors in the various sections.

Duration of training

The Basics of Ergonomics training takes 24 hours.

Examination

The Basics of Ergonomics training ends with an examination. As an exception, the Examination Board may order an additional oral examination. Scoring is done in accordance with par. 3.3.

Certificate

Having passed the exam in Ergonomic Assessment with MTM the candidate receives a certificate. Should the participant have failed the exam, a digital confirmation of participation will be issued instead of the certificate.

6.6 University Training: Methods-Time Measurement for students

The training Methods-Time Measurement for Students consists of the trainings MTM-1 Base and MTM-UAS and can be completed either as on-site training, as webinar or as e-learning.

Admission requirements

Participation in the course Methods-Time Measurement for students is based on the candidate being an active student at a university or a university of applied sciences (matriculation certificate).

Subject

The training Methods-Time Measurement for students consists of the trainings in MTM-1 Base and MTM-UAS.

Contents

- Historical development of MTM
- Overview of the Framework of MTM Process Building Block Systems
- MTM Basic Motions, limitations and influencing factors
- Rules for the consistent and correct use of the MTM Basic System
- The process building block system MTM-UAS and its development
- Principles of the development, structure, and content of the MTM-UAS Basic Operations
- The rules for the consistent and correct use of the process building block system MTM-UAS
- Practical exercises to consolidate the gained knowledge

Learning objectives

The participant **knows**

- the process building block systems MTM-1 and MTM-UAS and their development,
- the classification of MTM-1 and MTM-UAS in the Framework of the MTM Process Building Block Systems,
- the areas of application and application prerequisites for MTM-1 and MTM-UAS, and
- the MTM Basic Motions and their fundamental significance for higher aggregated MTM process building block systems,

The participant **is able to**

- create MTM-UAS analyses independently and masters the MTM-UAS rules,
- use MTM-UAS correctly in practice, in particular to
  - planning and designing work methods, work processes, and workplaces,
  - shape work contents (i.e. describe and assess them), and
  - improve existing work systems,
- explain the MTM Basic Motions and their fundamental significance for higher aggregated MTM process building block systems,

Procedure

Methods-Time Measurement for students on-site attendance courses and webinars may be taught in accordance with the currently valid Qualification Procedures of MTMA (par. 3.3) by a licensed MTM-Instructor only.

The instructor is either from MTMA or is a member of the respective university or university of applied sciences.

As a rule, the minimum number of participants is 20. Exceptions require prior written consent by the management of MTMA.

Training materials

The mandatory training materials consist of the manual, the MTM-1 data card (MTM Standard Times data card), the data cards of the MTM-UAS Basic Operations, the data cards of the MTM-UAS Standard Operations, daily repetition exercises, and various forms, all published by MTMA. Further teaching aids are the manual-related presentation, the MTM training box, the software TiCon, and films, which are provided together with the related work system descriptions, in accordance with the syllabus.

Duration of training

The Methods-Time Measurement for students training takes 80 hours.

Examination

The exams for the training Methods-Time Measurement for students are held pursuant to par. 4.1.1 for the training in MTM-1 Base and par. 4.1.6 for the training in MTM-UAS.

Certificate

Having passed the exams, the candidate receives the certificates in MTM-1 Base and MTM-UAS. Should the participant have failed the exam, a digital confirmation of participation will be issued instead of the certificate.

7 Fees

All fees have been set and listed by the Board of MTMA. For the list of fees, please go to https://training.mtm.org/ select Info/Downloads.

7.1 Examination and Cancellation Fees

The examination fees are included in the training fees for public and in the package prices for in-house trainings.
For cancellation conditions please refer to our GTC. For the GTC of MTMA, please go to https://www.mtm.org/agb.

7.2 Fees for Special Examinations

Candidates who did not acquire their knowledge in MTM trainings are also admitted to examinations. These examinations are subject to fees. Please refer to the valid List of Fees of MTMA. The same fees are charged for re-examinations.

7.3 "Sitting-in" Fees

For sitting-ins on in-house training measures that are taught by an instructor of MTMA the candidate will be charged with the package price for the respective training.

7.4 VAT

Pursuant to § 4 no. 22 UstG. (German Value Added Tax Act), training and examination fees are VAT-free.

8 Taking Effect

These Qualification Procedures were agreed by the management of MTMA, following the decision made by the Examination Board. They take effect on January 1, 2023.

MTM ASSOCIATION e. V.

Prof. Dr. Peter Kuhlang
Managing Director

Dr. Thomas Finsterbusch
Chairman of the Examination Board

9 Appendices

Appendix 1: Notes on the creation of mandatory analyses for the training MTM-Practitioner Refresher

Appendix 2 Notes on the creation of mandatory analyses for the training for MTM-Instructor or for the license courses for MTM-Instructors

Appendix 3 Notes on the creation of mandatory analyses for the trainings in EAWS