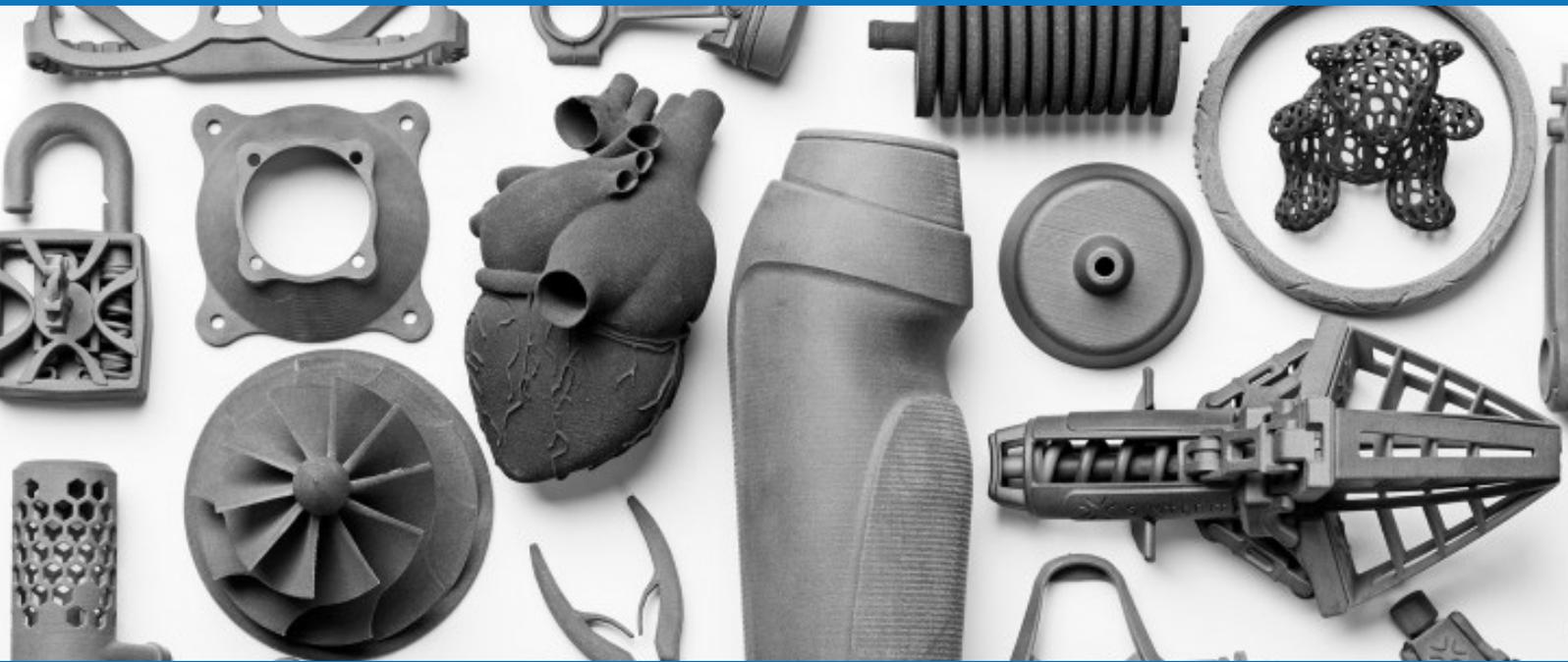




IAMQS

International **Additive Manufacturing** Qualifications Catalogue



2022 Catalogue



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Who is IAMQS?



IAMQS

The **IAMQS** - International Additive Manufacturing Qualification System was created by industry and for industry to ensure that companies and professionals are equipped with the right set of skills to implement AM at the industrial level.

The System uses a modular structure composed by units for learning outcomes to describe the expected knowledge and skills acquired by professionals after the successful completion of the training courses.

Within the system, a single syllabus for each level is defined, supported by a harmonised system for assessment and quality assurance, resulting in the same qualification being awarded independently from the country.

IAMQS started by focusing on Metal AM and is broadening its scope for the development of training guidelines for Polymers, ensuring a full alignment with industry requirements and technological breakthroughs, currently offering 12 Qualifications in Additive Manufacturing that are already been implemented in 7 countries and rapidly growing.

The management of the **International AM Qualification System** is done by **EFW**.

EFW and its member organizations have developed international harmonised system for education, training and qualification in the field of joining technologies and additive manufacturing. It was a pioneer organization developing the first harmonized system embracing all the European countries for the qualification of personnel for a wide range of levels both in welding, related technologies and inspection. With the expertise of the welding system, EFW has created the first AM international harmonised system.

Beyond the most obvious benefits of the system's harmonised approach to training, qualification and certification, its adoption is also due to a result of its robust and transparent quality system, one that is widely accepted by the ecosystem of individuals and organisations involved, from training institutions to national certification bodies, companies, trainers and trainees, and which is the backbone for assuring the same skills for any person holding an EFW diploma, awarded throughout the world.

EFW harmonised system provides companies with qualifications that focus on professional profiles deemed crucial for their success, ready to be applied at local and global operations in areas such as Industry 4.0 and one of its main pillars: **Additive Manufacturing (AM)**.

IAMQS System

In order to ensure the quality of its qualifications, IAMQS collects inputs from several sources, such as:

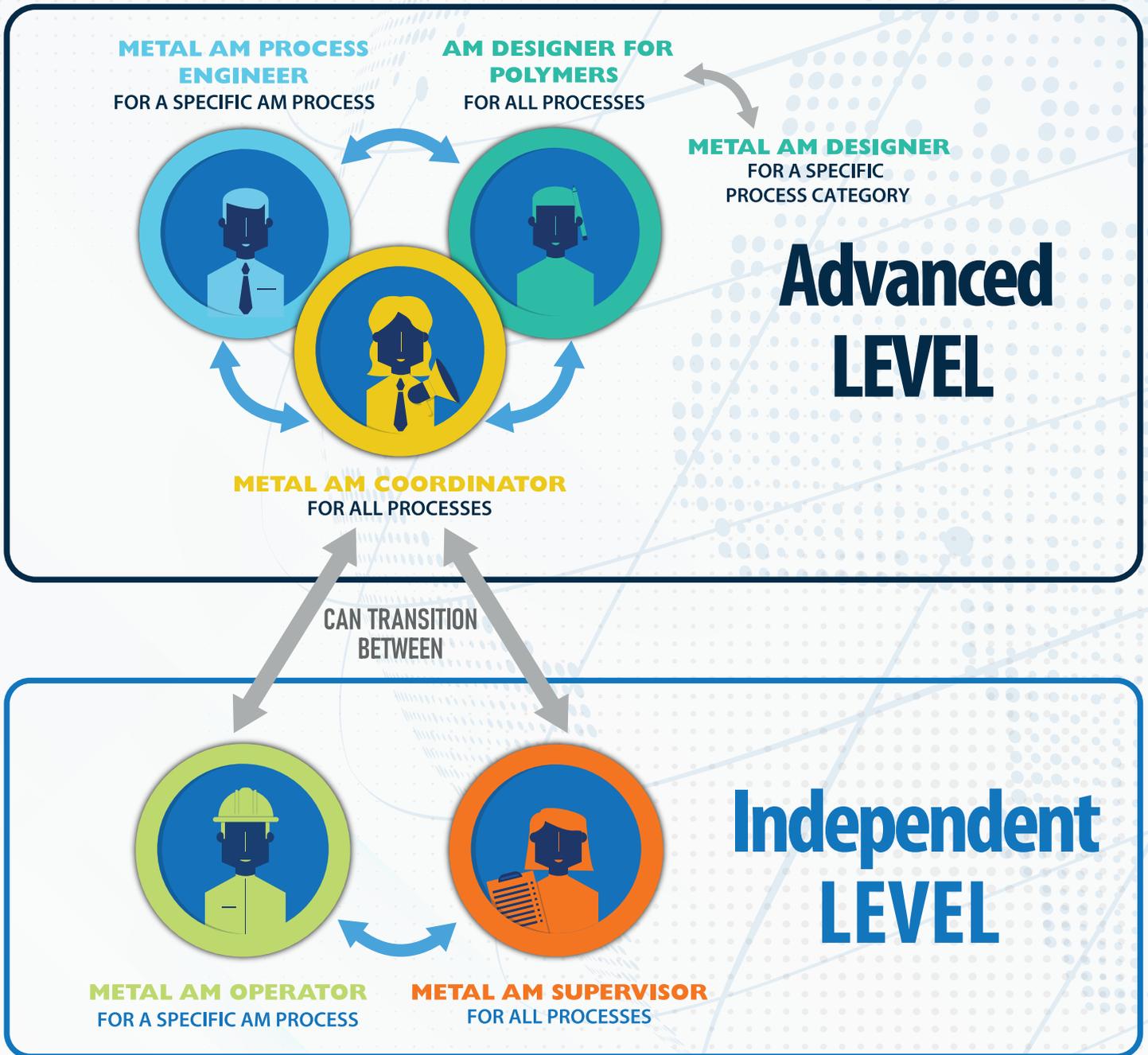


Due to the engagement with various AM stakeholders operating in the global market, in close connection with Standards requirements and with the support of EU funds, **IAMQS** has been able to build qualifications that are an added value to the sector and to the ones involved in the system



Training and Qualification System for Additive Manufacturing

Progression within IAMQS



*Advanced Level - alignment with EQF level 6

*Independent Level - alignment with EQF level 4

— Direct access

— Possible access, if other access conditions are also met

Modular and Cumulative System

The IAMQS Qualification System follows a modular structure, which enables a more flexible and tailor-made training (Modular and Cumulative System), as well as an easier integration of International Qualifications in National Qualifications Curriculum.

IAMQS Qualifications are structured in Competence Units comprehending a set of knowledge and skills, organized in learning outcomes, that can be individually taught, assessed and validated. Competence Units can also be part of a qualification/learning pathway or implemented individually.

Within IAMQS’s Qualifications, there are two types of Competence Units (CU):

- **FUNCTIONAL COMPETENCE UNIT** – A competence unit whose learning outcomes are directly linked with at least one job function and in which the knowledge and skills achieved will be mobilized in specific job functions and related activities.

FUNCTIONAL



- **CROSS-CUTTING COMPETENCE UNIT** – A competence unit whose learning outcomes are not directly linked with one job function since the knowledge and skills achieved will be mobilized in several job functions and activities.

CROSS CUTTING



The IAMQS Qualification system has several advantages for its users:

- Companies can train their personnel according to their needs;
- Current workforce and future trainees can benefit from a flexible and tailor-made training, both aligned with their needs and industrial requirements;
- Trainees can progress more easily within the qualification systems by updating their knowledge and skills, avoiding the duplication of contents (re-learning);
- Trainees can have enhanced opportunities for changing their career paths by getting qualified in a different area (up-skilling);

- For educational systems, both Vocational Education and Training and Higher Education, this represents an opportunity for addressing technical contents or emergent technologies which are required by the sector, and therefore can be easily integrated at national level;
- For educational systems, it also represents an opportunity for designing individual learning pathways that might be automatically recognized once it has been successfully completed;
- Qualifications aligned with standardisation requirements.



International Additive Manufacturing Qualifications:

- **Operator Powder Bed Fusion – *Laser Beam*** – I MAM O PBF-LB..... **10**
- **Process Engineer Powder Bed Fusion – *Laser Beam*** – I MAM PE PBF-LB..... **12**
- **Operator Direct Energy Deposition – *Laser Beam*** – I MAM O DED-LB..... **14**
- **Process Engineer Direct Energy Deposition – *Laser Beam*** – I MAM PE DED-LB..... **16**
- **Operator Powder Bed Fusion – *Electron Beam*** – I MAM O PBF-EB..... **18**
- **Operator Direct Energy Deposition – *Arc*** – I MAM O DED-Arc..... **20**
- **Process Engineer Direct Energy Deposition – *Arc*** – I MAM PE DED-Arc..... **22**
- **Designer for DED Processes** – I MAM D-DED..... **24**
- **Designer for PBF Processes** – I MAM D-PBF..... **26**
- **Designer for Polymers** – I AM D-P..... **28**
- **Coordinator** – I MAM C..... **30**
- **Supervisor** – I MAM S..... **32**



Operator Powder Bed Fusion Laser Beam Personnel (I MAM O PBF-LB)

Qualification: International Operator (I MAM O PBF-LB)

Introduction

Focusing on the practical skills and knowledge required to use and apply PBF-LB process on successful completion of this qualification. You will be equipped to start or progress your career at national or international level as operator, becoming an active member of this thriving, diverse and broad community.

Target Group

This training program addresses professionals having no experience, knowledge, skills and competences in the field of PBF-LB Additive Manufacturing or candidates having experience but willing to upgrade their knowledge. This qualification addresses personnel who needs to independently operate a powder bed fusion-laser beam machine, following working instructions.

Description

PBF-LB Operators are the professionals with the specific knowledge, skills, autonomy and responsibility to operate metal AM machines using PBF-LB Process.

His/her main tasks are to:

- Operate powder bed-based Laser beam machines for Additive Manufacturing, including fitting and setting up, maintenance and repair. He/ She will be able to:
 - Remove parts and prepare them for post-processing steps
 - Develop solutions on basic and specific problems related with powder-bed-based machines and processes for Additive Manufacturing

Benefits

- Up-to-date knowledge, skills and competences regarding the PBF-LB Additive Manufacturing process
- Gaining a formal recognition of a qualification to act in the field of Metal Additive Manufacturing using PBF-LB process
- A International recognised qualification which increases employability in the labour market, though mobility and skills transparency.

Operator Powder Bed Fusion Laser Beam Personnel (I MAM O PBF-LB)

Qualification: International Operator (I MAM O PBF-LB)

Required Course Content

#CU	Title	Recommended Hours
00	Additive Manufacturing Processes Overview	3,5
15	PBF-LB Process	14
16	Quality Assurance (QA) in PBF-LB	7
17	Health, Safety and Environment (HSE) in PBF-LB	3,5
18	Hardware, software and build file set-up for PBF-LB	14
19	Monitoring and managing the manufacturing of PBF-LB parts	3,5
20	Post processing of PBF-LB Systems	7
21	Maintenance of PBF-LB Systems	7
TOTAL:		60h

Optional Course Content

#CU	Title	Recommended Hours
48	Powder Handling	7
49	Laser Beam Characterisation	7

Access Conditions

- National compulsory school diploma.



Process Engineer Powder Bed Fusion Laser Beam Personnel (I MAM PE PBF-LB)

Qualification: International Process Engineer (I MAM PE PBF-LB)

Introduction

Experience what it takes to become a top PBF-LB expert and become a leader in this high demanding technological field in manufacturing projects! PBF-LB is a technology with growing significance in manufacturing. These qualifications will provide the competences for the technical implementation of this technology.

Target Group

This training programme is ideal for Engineers willing to specialize and pursue a career in PBF-LB AM.

Description

PBF-LB Engineers are the professionals with the specific knowledge, skills, autonomy and responsibility to coordinate Metal Additive Manufacturing using PBF-LB Process.

His/Her main tasks are to:

- Develop and execute PBF-LB plans including validation of design, implementation, pre and post processing operations, assurance of parts conformity and identification of the causes and the corrective actions of technical production problems;
- Apply a wide variety of engineering techniques, contributing to projects in a teaming environment and compare, investigate, transfer, and adapt procedures, techniques, or methods to new applications.

Benefits

- Up-to-date knowledge, skills and competences regarding the PBF-LB Additive Manufacturing process
- Understanding of technical requirements to be applied for solving complex problems and proving quality in requested conditions
- Offering the full picture of PBF-LB Additive Manufacturing coordination, both from the perspective of decision making and professional development
- A International recognised qualification which increases employability in the labour market, though mobility and skills transparency.

Process Engineer Powder Bed Fusion Laser Beam Personnel (I MAM PE PBF-LB)

Qualification: International Process Engineer (I MAM PE PBF-LB)

Required Course Content

#CU	Title	Recommended Hours
00	Additive Manufacturing Processes Overview	3,5
15	PBF-LB Process	35
25	Post processing	14
27	AM with steel feedstock (excluding Stainless Steel)	21 *
28	AM with Stainless Steel feedstock	14
29	AM with Aluminium feedstock	7
30	AM with Nickel feedstock	7
31	AM with Titanium feedstock	14
32	AM with Tungsten feedstock	3,5
33	Biomedical metallic materials	7
43	Production of PBF-LB parts	21
44	Conformity of PBF-LB parts	35
45	Conformity of facilities featuring PBF-LB	14
TOTAL:		122.5h

Optional Course Content

#CU	Title	Recommended Hours
26	Introduction to materials	14
35	Metal AM integration	21
36	Coordination activities	7

Access Conditions

- Graduates in Materials, Mechanical and Aerospace Engineering, or equivalent.

* It is mandatory that 2 materials CUs be selected, from the highlighted section. Hours of the materials CUs selected shall be added to the total hours.



Operator Directed Energy Deposition Laser Beam Personnel (I MAM O DED-LB)

Qualification: International Operator (I MAM O DED-LB)

Introduction

Focused on the practical skills and knowledge required to use and apply DED-LB, this qualification will provide you with the skills to become a top Operator in this thriving community.

Target Group

This training programme addresses candidates having no experience, knowledge, skills and competences in the field of DED-LB Additive Manufacturing or candidates having experience but willing to upgrade their knowledge and job function.

Description

DED-LB Operators are the professionals with the specific knowledge, skills, autonomy and responsibility to operate metal AM machines using DED-LB Process.

His/Her main tasks are to:

- Operate Laser based DED machines for Additive Manufacturing, including, fitting and setting up, maintenance and repair;
- Verify Laser beam measurement and positioning in DED machines for Additive Manufacturing;
- Self-manage the handling of feedstock (approval, storage, contamination, traceability);
- Develop solutions on basic and specific problems related with Laser based DED machines and processes for Additive Manufacturing.

Benefits

- Contemporary knowledge, skills and competences regarding the DED-LB Additive Manufacturing process.
- A International recognised qualification which increases employability in the labour market, though mobility and skills transparency.

Operator Directed Energy Deposition Laser Beam Personnel (I MAM O DED-LB)

Qualification: International Operator (I MAM O DED-LB)

Course Content

#CU	Title	Recommended Hours
00	Additive Manufacturing Process Overview	3,5
08	DED-LB Process	14
09	Quality Assurance (QA) in DED-LB	14
10	Health, Safety and Environment (HSE) in DED-LB	7
11	Fit and set-up of DED-LB systems	21
12	Manufacturing of DED-LB parts	7
13	Post processing of DED-LB parts	7
14	Maintenance of DED-LB systems	14
TOTAL:		87.5h

Optional Course Content

#CU	Title	Recommended Hours
48	Powder Handling	7
49	Laser Beam Characterisation and Properties	7

Access Conditions

- National compulsory school diploma.



Process Engineer Directed Energy Deposition Laser Beam Personnel (I MAM PE DED-LB)

Qualification: International Process Engineer (I MAM PE DED-LB)

Introduction

Increase your professional skills by acquiring a professional qualification in a growing sector. This Qualification is perfect for you if you want to have higher role and responsibilities at your organisation in DED-LB.

Target Group

This training course is ideal for Engineers willing to specialize and pursue a career in DED-LB

Description

DED-LB Engineers are the professionals with the specific knowledge, skills, autonomy and responsibility to operate Metal Additive Manufacturing machines using DED-LB Process.

His/Her main tasks are to:

- Develop and execute DED-LB plans including validation of design, implementation, pre and post processing operations, assurance of parts conformity and identification of the causes and the corrective actions of technical production problems;
- Apply a wide variety of engineering techniques, contributing to projects in a teaming environment and compare, investigate, transfer, and adapt procedures, techniques, or methods to new applications.

Benefits

- State-of-the-art knowledge, skills and competences regarding the DED-LB Additive Manufacturing process;
- Ability to understand technical requirements when solving complex problems and proving quality in requested conditions;
- Full picture of DED-LB Additive Manufacturing coordination, both from the perspective of decision making and professional development.
- A International recognised qualification which increases employability in the labour market, though mobility and skills transparency.

Process Engineer Directed Energy Deposition Laser Beam Personnel (I MAM PE DED-LB)

Qualification: International Process Engineer (I MAM PE DED-LB)

Course Content

#CU	Title	Recommended Hours
00	Additive Manufacturing Process Overview	3,5
08	DED-LB Process	35
25	Post processing	14
27	AM with Steel feedstock (excluding Stainless Steel)	21 *
28	AM with Stainless Steel feedstock	14
29	AM with Aluminium feedstock	7
30	AM with Nickel feedstock	7
31	AM with Titanium feedstock	14
32	AM with Tungsten feedstock	3,5
33	Biomedical metallic materials	7
40	Production of DED-LB parts	21
41	Conformity of DED-LB parts	42
42	Conformity of facilities featuring DED-LB	14
TOTAL:		129.5h

Optional Course Content

#CU	Title	Recommended Hours
26	Introduction to materials	14
35	Metal AM integration	21
36	Coordination activities	7

Access Conditions

- Graduates in Materials, Mechanical and Aerospace Engineering, or equivalent.

* It is mandatory that 2 materials CUs be selected, from the highlighted section. Hours of the materials CUs selected shall be added to the total hours.



Operator Directed Energy Deposition Arc Personnel (I MAM O DED-Arc)

Qualification: International Operator (I MAM O DED-Arc)

Introduction

Become a driver of innovation in your company as DED-Arc is evolving fast and expertise is in high demand. Definitely one qualification that will reap dividends throughout your career.

Target Group

This training course addresses candidates having no experience, knowledge, skills and competences in the field of DED-Arc Additive Manufacturing or candidates having experience but willing to upgrade their knowledge and job function.

Description

DED-Arc Operators are the professionals with the specific knowledge, skills, autonomy and responsibility to operate Metal Additive Manufacturing machines using DED-Arc Process.

His/Her main tasks are to:

- Operate arc based DED machines for Additive Manufacturing, including, fitting and setting up, maintenance and repair. He/She will be able to:
 - Verify arc related parameters and positioning in DED-Arc machines for Additive Manufacturing
 - Self-manage the handling of feedstock (approval, storage, contamination, traceability)
 - Develop solutions on basic and specific problems related with DED-Arc machines and processes for Additive Manufacturing

Benefits

- Up-to-date knowledge, skills and competences regarding the DED-Arc Additive Manufacturing process
- A International recognised qualification which increases employability in the labour market, though mobility and skills transparency.

Operator Directed Energy Deposition Arc Personnel (I MAM O DED-Arc)

Qualification: International Operator (I MAM O DED-Arc)

Course Content

#CU	Title	Recommended Hours
00	Additive Manufacturing Processes Overview	3,5
01	DED-Arc Process	14
02	Quality Assurance (QA) in DED-Arc	7
03	Health, Safety and Environment (HSE) in DED-Arc	7
04	Fit and set-up of DED-Arc systems	21
05	Manufacturing of DED-Arc parts	7
06	Post processing of DED-Arc parts	7
07	Maintenance of DED-Arc systems	14
TOTAL:		80.5h

Access Conditions

- National compulsory school diploma.



Process Engineer Directed Energy Deposition Arc Personnel (I MAM PE DED-Arc)

Qualification: International Process Engineer (I MAM PE DED-Arc)

Introduction

Experience what it takes to become a top DED-Arc expert and become a leader in this high demanding technological field in manufacturing projects! DED-Arc is a technology with growing significance in manufacturing. These qualifications will give you competences for the technical implementation of this technology.

Target Group

This training course is ideal for Engineers willing to specialize and pursue a career in DED-Arc.

Description

DED-Arc Engineers are the professionals with the specific knowledge, skills, autonomy and responsibility to manage Metal Additive Manufacturing using DED-Arc Process

His/Her main tasks are to:

- Develop and execute DED-Arc plans including validation of design, implementation, pre and post processing operations, assurance of parts conformity and identification of the causes and the corrective actions of technical production problems;
- Coordinate the tasks distribution between the operators according to the workplan as well as manage the link between them and the management.
- Apply a wide variety of engineering techniques, contributing to projects in a teaming environment and compare, investigate, transfer, and adapt procedures, techniques, or methods to new applications.

Benefits

- Up-to-date knowledge, skills and competences regarding the DED-Arc AM process;
- Understanding of technical requirements to be applied for solving complex problems and proving quality in requested conditions;
- Broad awareness of DED-Arc Additive Manufacturing coordination, both from the perspective of decision making and professional development;
- A International recognised qualification which increases employability in the labour market, though mobility and skills transparency.

Process Engineer Directed Energy Deposition Arc Personnel (I MAM PE DED-Arc)

Qualification: International Process Engineer (I MAM PE DED-Arc)

Course Content

#CU	Title	Recommended
		Hours
00	Additive Manufacturing Processes Overview	3,5
01	DED-Arc Process	42
25	Post processing	14
27	AM with Steel feedstock (excluding Stainless Steel)	21 *
28	AM with Stainless Steel feedstock	14
29	AM with Aluminium feedstock	7
30	AM with Nickel feedstock	7
31	AM with Titanium feedstock	14
32	AM with Tungsten feedstock	3,5
33	Biomedical metallic materials	7
37	Production of DED-Arc parts	28
38	Conformity of DED-Arc parts	42
39	Conformity of facilities featuring DED-Arc	14
TOTAL:		143.5h

Optional Course Content

#CU	Title	Recommended
		Hours
26	Introduction to materials	14
35	Metal AM integration	21
36	Coordination activities	7

Access Conditions

- Graduates in Materials, Mechanical and Aerospace Engineering, or equivalent.

* It is mandatory that 2 materials CUs be selected, from the highlighted section. Hours of the materials CUs selected shall be added to the total hours.



Operator Powder Bed Fusion Electron-Beam Personnel (I MAM O PBF-EB)

Qualification: International Operator (I MAM O PBF-EB)

Introduction

Focusing on the practical skills and knowledge required to use and apply PBF-EB process on successful completion of this qualification. You will be equipped to start or progress your career at national or international level as operator, becoming an active member of this thriving, diverse and broad community.

Target Group

This training program addresses professionals having no experience, knowledge, skills, and competences in the field of PBF-EB Additive Manufacturing or candidates having experience but willing to upgrade their knowledge. This qualification addresses personnel who needs to independently operate a powder bed fusion-electron beam machine.

Description

PBF-EB Operators are the professionals with the specific knowledge, skills, autonomy and responsibility to operate metal AM machines using PBF-EB Process.

His/Her main tasks are to:

- Operate powder bed-based Electron beam machines for Additive Manufacturing, including, fitting and setting up, maintenance and repair;
- Self-manage the handling of feedstock (approval, storage, contamination, traceability);
- Develop solutions on basic and specific problems related with powder bed-based machines and processes for Additive Manufacturing.

Benefits

- Up-to-date knowledge, skills and competences regarding the PBF-EB Additive Manufacturing process;
- A International recognised qualification which increases employability in the labour market, though mobility and skills transparency.

Operator Powder Bed Fusion Electron-Beam Personnel (I MAM O PBF-EB)

Qualification: International Operator (I MAM O PBF-EB)

Course Content

#CU	Title	Recommended Hours
00	Additive manufacturing Processes Overview	3.5
22	PBF-EB Process	14
23	Quality Assurance (QA) in PBF-EB	7
24	Health, Safety and Environment (HSE) in PBF-EB	3.5
50	Hardware, software and build file set-up for PBF-EB	14
51	Monitoring and managing the manufacturing of PBF-EB parts	3.5
52	Post processing of PBF-EB parts	7
53	Maintenance of PBF-EB systems	7
		TOTAL: 59.5h

Optional Course Content

#CU	Title	Recommended Hours
48	Powder Handling	7

Access Conditions

- National compulsory school diploma.



Designer for DED Processes

Qualification: International Designer for DED Processes (I MAM D-DED)

Introduction

Increase your competences and skills by acquiring a professional qualification in a growing sector. This qualification will give you advanced knowledge and critical understanding of the theory, principles and applicability of metal additive manufacturing design for different processes.

Target Group

This training programme is ideal for Engineers willing to specialise and pursue a career in AM, with focus on designing metal AM parts for DED processes.

Description

International Metal AM **Designers for DED Processes** are professionals with the specific knowledge, skills, autonomy and responsibility to design metal AM solutions for DED Processes.

His/her main tasks are to:

- Design Metal AM solutions for DED Processes ensuring and validating that parts can be made cost-effective and efficiently.
- Close DED Processes design projects by verifying requirements for production with engineer as well as process requirements, ensuring liaison with other technical areas to sign of drawings.
- Contribute to projects in a teaming environment cooperation with AM Team.

Benefits

- State-of-the-art knowledge, skills and competences regarding DED Additive Manufacturing processes;
- Understanding of technical principles and applicability of metal additive manufacturing design for DED processe;
- A International recognised qualification which increases employability in the labour market, though mobility and skills transparency.

Designer for DED Processes

Qualification: International Designer for DED Processes (I MAM D-DED)

Course Content

#CU	Title	Recommended Hours
00	Additive Manufacturing Process Overview	3,5
25	Post Processing	14
57	Relevant principles of DED Processes for Design	14
58	Design Metal AM parts for DED Processes	35
61	Simulation Analysis	21
TOTAL:		87.5h

Optional Course Content

#CU	Title	Recommended Hours
62	Simulation Execution	14

Access Conditions:

- Graduates in Materials, Mechanical Areas, Aerospace Engineering or equivalent.



Designer for PBF Processes

Qualification: International Designer for PBF Processes (I MAM D-PBF)

Introduction

Increase your competences and skills by acquiring a professional qualification in a growing sector. This qualification will give you advanced knowledge and critical understanding of the theory, principles and applicability of metal additive manufacturing design for different processes.

Target Group

This training programme is ideal for Engineers willing to specialise and pursue a career in AM, with focus on designing metal AM parts for PBF processes.

Description

International Metal AM **Designers for PBF Processes** are professionals with the specific knowledge, skills, autonomy and responsibility to design metal AM solutions for PBF Processes.

His/her main tasks are to:

- Design Metal AM solutions for PBF Processes ensuring and validating that parts can be made cost-effective and efficiently.
- Close PBF Processes design projects by verifying requirements for production with engineer as well as process requirements, ensuring liaison with other technical areas to sign of drawings.
- Contribute to projects in a teaming environment cooperation with AM Team.

Benefits

- State-of-the-art knowledge, skills and competences regarding PBF Additive Manufacturing processes;
- Understanding of technical principles and applicability of metal additive manufacturing design for PBF processes;
- A International recognised qualification which increases employability in the labour market, though mobility and skills transparency.

Designer for PBF Processes

Qualification: International Designer for PBF Processes (I MAM D-PBF)

Course Content

#CU	Title	Recommended Hours
00	Additive Manufacturing Process Overview	3,5
25	Post Processing	14
59	Relevant principles of PBF Processes for Design	21
60	Design Metal AM parts for PBF Processes	28
61	Simulation Analysis	21
TOTAL:		87.5h

Optional Course Content

#CU	Title	Recommended Hours
62	Simulation Execution	14

Access Conditions:

- Graduates in Materials, Mechanical Areas, Aerospace Engineering or equivalent.



Designer for Polymers

Qualification: International Designer for Polymers (I AM D-P)

Introduction

Increase your competences and skills by acquiring a professional qualification in a growing sector. This qualification will give you advanced knowledge and critical understanding of the theory, principles and applicability of polymers additive manufacturing design for different processes.

Target Group

This training programme is ideal for Engineers willing to specialise and pursue a career in AM, with focus on designing polymers AM parts.

Description

International AM **Designers for Polymers** are the professionals with the specific knowledge, skills, autonomy and responsibility to design AM solutions for the main Polymers Processes.

His/ger main tasks are to:

- Create part design solutions for AM polymer processes ensuring that:
 - the design considers AM benefits
 - the part can be manufactured in a cost-effective and efficient way
 - post-processing can be applied
- Close polymer design proposals by verifying requirements for production, post-processing, quality control and process requirements with the project responsible, ensuring liaison with other technical areas to sign the drawings.
- Contribute to projects in cooperation with AM Team and costumers.

Benefits

- State-of-the-art knowledge, skills and competences regarding design for the main AM Polymers Processes;
- Understanding of technical principles and applicability of polymers additive manufacturing design;
- A International recognised qualification which increases employability in the labour market, though mobility and skills transparency.

Designer for Polymers

Qualification: International Designer for Polymers (I AM D-P)

Course Content

#CU	Title	Recommended Hours
00	Additive manufacturing Processes Overview	3.5
65	Overview on polymer materials and properties	3.5
66	Designing Polymers Parts	21
67	Post Processing for Polymers	3.5
68	Design for Material Extrusion	10.5
69	Design for Powder Bed Fusion of Polymers	10.5
70	Design for Vat Photopolymerization	10.5
71	Design for Material Jetting	10.5
TOTAL:		73.5h

Access Conditions:

- Graduates in Materials, Mechanical Areas, Aerospace Engineering or equivalent.



Coordinator

Qualification: International Coordinator (I MAM C)

Introduction

Do you seek to upgrade your knowledge in AM technologies and a key asset in the process of decision making and coordination task? Than, this Qualification is for you!

Target Group

This training course is ideal for Engineers willing to widen their knowledge in AM processes in general and coordination activities.

Description

As an European/International Metal Additive Manufacturing **Coordinator** you are expected to detain skills in operational aspects of the different AM technologies, such as:

- Evaluate manufacturing suitability for customers' requests defining which processes are fit for the request, using cost models.
- Coordinate the tasks distribution between the operators according to the workplan as well as manage the link between them and the management.

Benefits

- Up-to-date knowledge, skills and competences regarding Additive Manufacturing processes;
- Understanding of technical requirements to be applied for solving complex problems and proving quality in requested conditions;
- A International recognised qualification which increases employability in the labour market, though mobility and skills transparency.

Coordinator

Qualification: International Coordinator (I MAM C)

Course Content

#CU	Title	Recommended Hours
00	Additive Manufacturing Process Overview	3.5
01	DED-Arc Process	42
08	DED-LB Process	35
15	PBF-LB Process	35
25	Post Processing	14
34	Process Selection	28
35	Metal AM Integration	21
36	Coordination Activities	7
TOTAL:		185.5h

Optional Course Content

#CU	Title	Recommended Hours
22	PBF-EB Process	14

Access Conditions:

- Graduates in Materials, Mechanical Areas, Aerospace Engineering or equivalent.



Supervisor

Qualification: International Supervisor (I MAM S)

Introduction

Focused on the practical skills and knowledge required to supervise AM production on shop floor, this qualification will give you the competences for the technical management of an AM plant.

Target Group

This training programme addresses candidates having basic knowledge and skills related with Quality Assurance and HSE, willing to specialise and pursue a career in AM.

Description

International Metal AM **Supervisors** are professionals with the specific knowledge, skills, autonomy and responsibility to supervise AM production on shop floor.

His/ger main tasks are to:

- Implement Quality Procedures
- Ensure Health & Safety Environment Procedures
- Record the essential information during the AM manufacturing process

Benefits

- Up-to-date knowledge, skills and competences regarding Additive Manufacturing processes;
- Understanding of technical requirements to be applied for supervise Quality Assurance procedures and HSE on the AM Shop floor;
- A International recognised qualification which increases employability in the labour market, though mobility and skills transparency.

Supervisor

Qualification: International Supervisor (I MAM S)

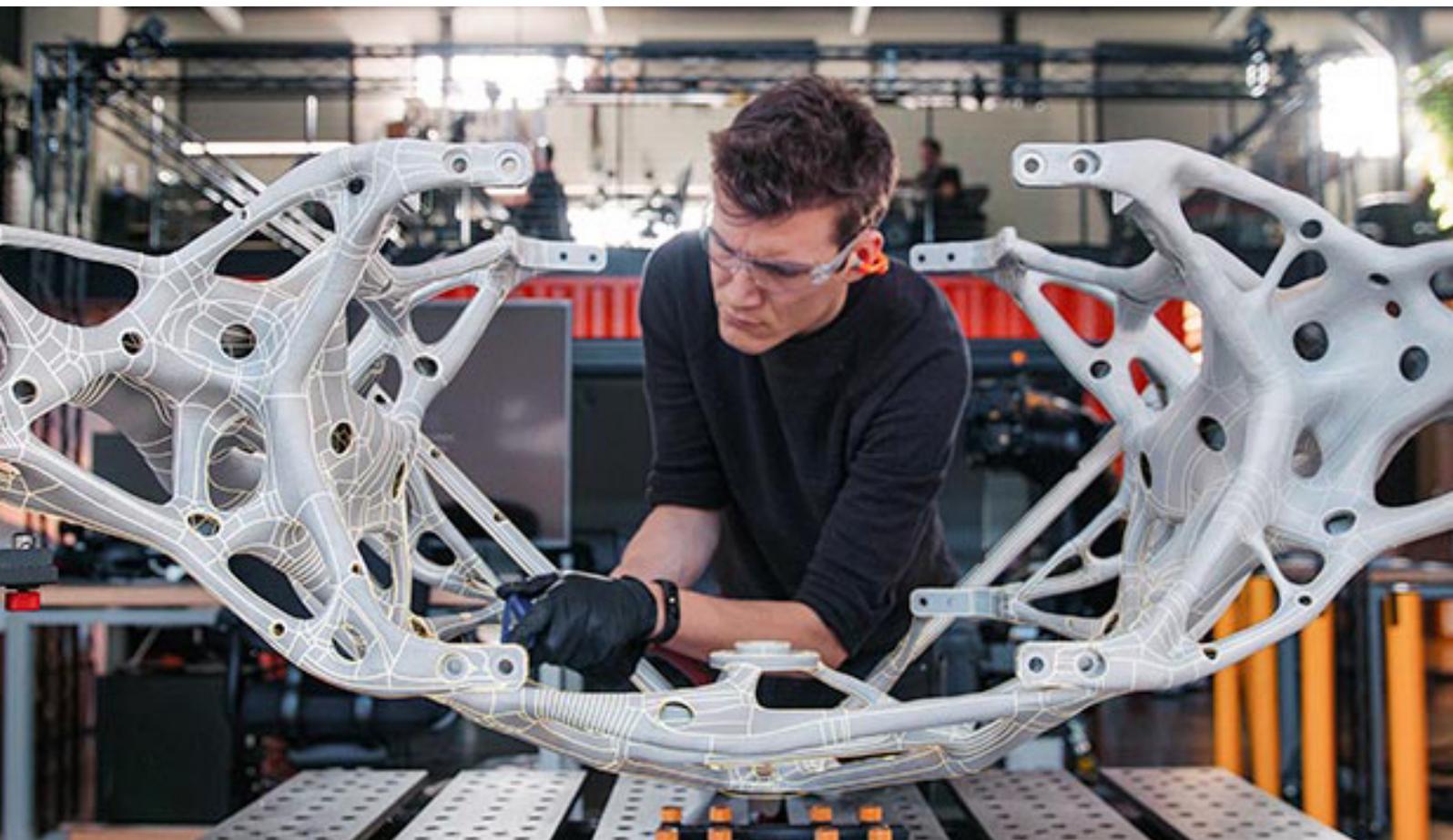
Course Content

#CU	Title	Recommended Hours
00	Additive Manufacturing Process Overview	3,5
01	DED-Arc Process	14
08	DED-LB Process	14
15	PBF-LB Process	14
46	Quality Assurance for Metal AM Processes	14
47	HSE for Metal AM Processes	14
48	Powder Handling	7
TOTAL:		80.5h

Future Qualifications

IAMQS strives to provide high quality training courses, in-keeping with the market demand. Therefore, future Metal AM qualifications are on their way to meet the industry's expectations:

- **International Metal AM Powder Bed Fusion – Electron Beam Personnel**
Qualifications: **International Process Engineer – IPE PBF-EB**
- **International Metal AM Directed Energy Deposition – Electron Beam Personnel**
Qualifications: **International Operator – IO DED-EB**
International Process Engineer – IPE DED-EB
- **International Metal AM Inspector**



How to become an Authorised Training Center (ATB) for the IAMQS

A Training Center willing to become an AM ATB needs to undergo an approval process carried out by an AM ANB. The Training Center is free to apply to one or more AM ANBs ensuring that the scope for which it wants to be approved is within the scope of operation of the AM ANB(s) concerned. This approval process is comprised of:

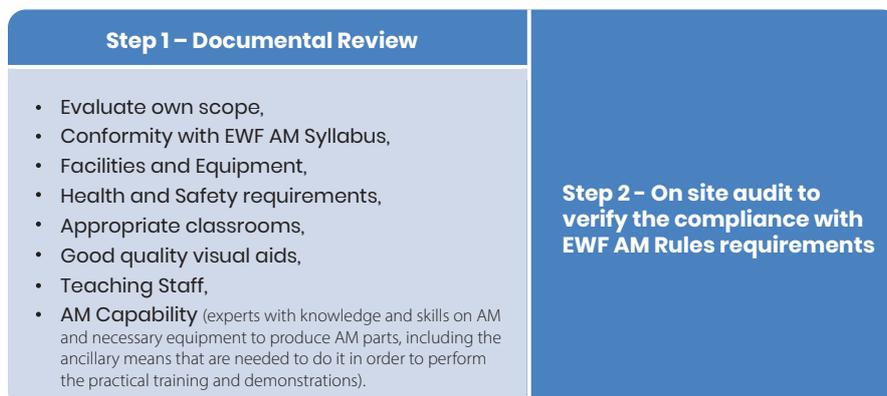
1. Training Center's Application

It is AM ANB's responsibility to approve AM ATBs for a specific scope of activity to conduct AM courses as described in IAMQS AM Guidelines. Therefore, the Training Center selects an AM ANB for a specific scope of activities, to which it presents and application to become an AM ATB.

2. Procedures for Approving the AM ATB

The selected AM ANB assesses the Training Center's application based on the conditions set by IAMQS AM Rules' procedures, elaborated by IAMQC.

The assessment conditions are comprised of two distinct steps:



After AM ANB's assessment, the Training Center will see its application approved, proving it fulfils all requirements for delivering training in accordance with IAMQS AM Guidelines, under a specific scope of authorization – it becomes an AM ATB.

Advantages of being an AM ATB

- Access to an internationally recognized AM Qualification System;
- AM Qualification 100% in line with industrial requirements and in compliance with Standardization rules;
- Usage of a Qualification that is recognized by CEDEFOP as a best practice of international qualification system.

Collaborating partners

IAMQS benefited from the contribution of several relevant partners specialised in the Additive Manufacturing sector to evolve the qualifications presented herein.

Hence, IAMQS is grateful to all participating organisations, with special regard to the partners of the following projects:



These qualification are supported by CECIMO, the European Association of the Machine Tool Industries and related Manufacturing Technologies.







Additive Manufacturing Qualifications Catalogue

Version 2

www.ewf.be/qualification/iamqs

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