

Overview

This standard covers the operation and control of 3D Printing equipment and processes. 3D Printing, also known as additive manufacturing is a process that creates objects by adding material in thin layers until a product is completed. There are many different types of 3D printing and more are emerging all the time. Objects can be "printed" from hundreds of different materials including but not restricted to plastic, metal, nylon, paper and even foods.

This standard applies to you if you are responsible for the operation of 3D printing equipment or the production of 3D Printed components. whether you work in a studio, engineering company, manufacturing company, university, architects bureau or digital printing environment.

Performance criteria

You must be able to:

1. confirm the 3D printing machine has been set up in the appropriate way for the job
2. start the machine and check it is working in line with manufacturer's instructions
3. run the 3D printing machine in a safe and efficient manner in line with the manufacturer's instructions
4. operate the machine at the required speed for the outputs required
5. check at regular intervals that quality standards and job specifications are met
6. resolve any machine problems which affect quality or productivity without delay
7. follow the correct procedure for the removal of waste material
8. recycle waste materials in line with organisational procedures
9. remove completed objects from the machine at the appropriate time
10. check the final quality of objects and take appropriate action to deal with any faults or blemishes
11. clean and close down the machine in line with manufacturer's instructions

Knowledge and understanding

You need to know and understand:

The law as it affects printing

1. defamation
2. copyright and ownership of files and products/models
3. obscenity
4. incitement
5. forgery
6. data protection

Ethical issues relevant to printing

7. confidentiality

Health and safety

8. your duties and responsibilities for health and safety as defined by any specific legislation covering your job role
9. the hazards and risks in your own job, their assessment and the action to take to deal with them
10. manufacturers' and suppliers' health and safety instructions/advice

The safe handling of customer material

11. what kinds of customer materials are likely to be handled, including original photographs or artwork, samples, files, disks, raw materials
12. techniques for protecting customer materials
13. the potential for loss or damage

Security and storage

14. computer system security and virus protection
15. the print with time-sensitive or restricted release dates
16. the high value products with a high risk of theft
17. how to securely archive digital and conventional artwork

Communication requirements and processes

18. how to communicate with colleagues
19. how to communicate with customers
20. how to communicate with suppliers

Workplace policy and practice

21. workplace objectives, priorities, standards and procedures

22. the way you actually do your job, more particularly the activities and techniques and the way that materials and equipment are used

The operation of equipment

23. the set-up of 3D printing equipment and software
24. the operation of 3D printing equipment and software

Printing

25. the principles of 3D printing
26. types of 3D printer and their differences and similarities
27. how to keep abreast of developments in 3D printing
28. the principles of digital printing

Digital files

29. file conversion techniques
30. file compression and decompression techniques
31. how to transmit digital files
32. file management procedures

The causes and treatment of common faults

33. raw material faults
34. processing faults
35. machine faults

Administrative procedures

36. planning and scheduling
37. recording and reporting
38. product labelling

Environmental considerations

39. the legal requirements for the classification, storage, carriage and disposal of waste

Quality assurance and control

40. the main features of quality assurance and quality control systems
41. techniques for controlling quality
42. equipment for controlling quality in printing
43. light standards for viewing and assessing print

Problem solving

- 44. types of problems that may need to be solved
- 45. sources of information
- 46. techniques for solving complex problems
- 47. techniques for assessing machine faults

Materials

- 48. the types and characteristics of materials being used for 3D printing
- 49. maintaining the quality of materials during storage and handling

Scope/range

The operator has the ability to control all aspects of a production-scale 3D printing machine in a production environment – to keep the machine running consistently from day to day, to maintain accuracy, to solve problems that may arise and to understand and use correctly all the parameters and options in the printer software and device driver/print dialogue boxes.

Note: This standard has been written for operators of 'production-scale' digital printers and therefore not relevant for the operation of an office or desktop laser/inkjet printer.

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Control the use of the 3D printing machines



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Suite Pre Press

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