Unit 302 Productivity and Quality Assurance in Desktop Publishing (DTP) and Pre-Press 3

Rationale

This unit is concerned with developing a clear understanding of productivity, quality assurance and the common production processes in DTP and pre-press including workflow, proofing and archiving.

Outcomes

There are six outcomes to this unit. The candidate will be able to

1. identify the issues which affect profitable production and productivity, and the reasons why these are important in the printing and graphic communications industry
2. identify the main features of quality assurance and quality control systems
3. identify the activities and processes within DTP and pre-press areas and plan the workflow
4. identify the administrative control procedures in DTP and pre-press areas
5. describe the different methods of producing proofs and the strengths and weaknesses of each
6. describe the methods used to archive DTP and pre-press work.

Connection with other awards

This unit contributes towards the knowledge and understanding required for units B1, B2, 002, 212 IT, 305 IT, 340, 705, 706 and 707 of the Level 3 NVQ in Printing.

Assessments

This unit will be assessed by means of a short written answer test covering the six outcomes.

Outcome 1: Identify the issues which affect profitable production and productivity, and the reasons why these are important in the printing and graphic communications industry

Underpinning Knowledge

The candidate will be able to

1. state that for a commercial printing and graphic communications company to stay in business, it must produce work which is of the quality required by its customers profitably

2. state that work can usually only be produced profitably if it is completed to the standard required within the time which has been allowed for production, unless the customer has explicitly agreed to pay for as much time as is needed to produce the work

3. state that printed work can usually only be produced profitably if it is right first time and produced without excessive waste of materials or resources or damage to equipment

4. state that some printed work is required to be produced by a specific date and time, and that failure to meet the deadline may result in the job being of no use (e.g. newspapers, concert programmes, meeting reports)

5. state that some printed work is required for other manufacturing processes (e.g. packaging or labels) and that failure to meet the deadline may result in very expensive delays in the manufacture of other products

6. identify the key issues affecting profitable production in DTP and pre-press as including that:
   a) equipment is in serviceable condition, correctly calibrated and available for production
   b) correctly configured digital files are compatible with the equipment in use are produced or received
   c) accurate work instructions have been prepared and passed to those who will produce the job
   d) earlier operations or processes have been completed to the correct specification and standard
   e) workers who will produce the job have been properly trained and have the skills and knowledge necessary to do the work successfully
   f) materials needed to produce proofs, image carriers, etc. are available when required

7. state that for plant and equipment to be in serviceable condition, correctly calibrated and fit for production, it must be:
   a) clean – scanning surfaces, monitors, imaging heads, drums and any transport systems in the equipment must be free from dust or foreign particles
   b) lubricated – to ensure there is no unnecessary wear of moving parts
   c) maintained – in accordance with the manufacturer's instructions and specifications, so as to ensure safety of operation and satisfactory performance in operation

8. explain that in order to ensure that digital files are correctly configured and compatible with the hardware and software in use it is vitally important for pre-press areas and DTP areas to have a common understanding of what is required for subsequent processes

9. state that for the correct materials to be available in the required quantity:
    a) an order from a supplier must have been raised or
    b) the materials identified as being in stock, and
    c) at the time of delivery or stock allocation, the materials specification and quantity must have been carefully checked to confirm that they are correct

10. state that in order to be sure that the previous operations or processes have been completed to the correct specification and standard, there must be a system of authorising the release of the work to the next stage of production

11. state that productivity is improved by producing more finished work with the same amount of labour in a given time, and that the companies with the highest levels of productivity are usually best able to compete successfully for business, locally and internationally.

Outcome 2: Identify the main features of quality assurance and quality control systems

Underpinning Knowledge

The candidate will be able to

1. state that a quality product or service is one which satisfies the requirements of the customer

2. state that quality control is usually concerned with identifying defective products and preventing them from reaching the customer, whereas quality assurance is concerned with all aspects of company activities, from initial customer enquiry to delivery of the product or service

3. state that a quality assurance system will also be concerned with continuously improving the product or service by identifying the reasons why failures occur and taking steps to improve the system to reduce or eliminate repetition of the same failures

4. state that quality control will often form part of a quality assurance system and will usually include the following techniques:
   a) inspection
   b) testing
   c) sampling
   d) the use of input and output controls

5. describe the purpose and use of equipment used for maintaining quality standards in DTP and pre-press areas, including:
   a) calibrated densitometers – transmission and reflection
   b) calibrated dot meter
   c) colour reference books/swatches (e.g. pantone)
   d) calibrated ruler
   e) calibrated targets for scanners
   f) colour management software
   g) spectrophotometer

6. state that in order to maintain reliable and consistent quality of output from equipment, it must be cleaned, lubricated and maintained in accordance with the manufacturer's recommendations

7. state that a quality assurance system will usually include the following:
   a) control of suppliers
   b) receive goods in
   c) detailed operating procedures
   d) a system for tracing production and controlling documentation
   e) arrangements for dealing with non-conforming products
   f) arrangements for internally auditing the quality system and procedures
   g) a system for calibration and maintenance of equipment

8. state that a quality assurance system can be designed to meet external standards such as ISO9000, and that companies with such a system may choose to be externally assessed against the standard with a view to being accredited

9. state that there are other British (BS) and International (ISO) standards, which have relevance to the printing and graphic communications industry, such as viewing conditions for colour assessment.

Outcome 3: Identify the activities and processes within DTP and pre-press areas and plan the workflow

Underpinning knowledge

The candidate will be able to

1. identify the activities of DTP and pre-press production as including:
   a) creating and/or receiving artwork for reproduction in print or electronically
   b) identifying any printing and post-printing requirements, including scheduled production times
   c) assessing the suitability of artwork, originals, data files and proofs supplied by the customer
   d) planning DTP and/or pre-press work required for the job
   e) carrying out the colour reproduction activities required to achieve the job specification (colour management, scanning and colour separation)
   f) verifying the thumbnails for multi page documents
   g) determining any imposition requirements) outputting image carriers which meet the specification for the job
   h) producing proofs for approval
   i) archiving data and/or image carriers and proofs

2. state that the reasons for identifying faults in customer supplied artwork, originals, data files and proofs at the DTP and pre-press stages of production include:
   a) reduced risk of delays in the later stages of production and completion
   b) prevent additional costs being incurred production
   c) avoid wasted materials caused by having to repeat work
   d) avoid disputes with the customer as to responsibility for defects in the finished job

3. state that consistent and accurate DTP and pre-press work requires hardware to be maintained and calibrated in accordance with the manufacturers instructions

4. state that consistent and accurate DTP and pre-press work requires that colour management software, including colour profiles, must be correctly installed and configured on the digital devices used to convert or produce data files

5. state that consistent and accurate DTP and pre-press work requires the use of control and measurement equipment

6. state that the appropriate British Standards for print reproduction include:
   a) BS 5261 for text and copy preparation
   b) BS 4785 for process colour reproduction

7. identify the DTP and pre-press workflow for any given job taking into account the following:
   a) the steps needed to ensure that the layout and content of the document meet or will meet with the customer's instructions and/or specification
   b) the steps needed to ensure any supplied graphic images have sufficient resolution to achieve the job specification
   c) the steps needed to ensure that the document is free from spelling, literal and grammatical errors
   d) the scanning requirements, retouching, enlarging or screening of images
   e) the output requirements – e.g. film, paper, plate, screen or a data file
   f) the emulsion requirements - ensuring that the contact emulsion of any film is appropriate for the printing process
   g) the imposition scheme
   h) the method of working, i.e. analogue or digital or a mix of the two
   i) printing production processes
   j) substrates to be printed on together with any special finishes
   k) folding and binding requirements

8. identify the quality checks required to assure quality of output for each pre-press activity or process.

Outcome 4: Identify the administrative control procedures in DTP and pre-press areas

Underpinning knowledge

The candidate will be able to

1. identify from a works instruction ticket/works order/job bag the customer, job number and name, contact information, job specification, and delivery date

2. state what approval is necessary to undertake any DTP or pre-press work required which had not been anticipated or identified when the job was first received

3. describe how to verify the availability of the required resources (materials, equipment people) to achieve the job specification and that equipment calibration and maintenance is up to date

4. identify the steps to be taken to ensure that, prior to release of DTP or pre-press products to the next stage of production, authority has been given by the relevant person

5. state that after completion of all DTP or pre-press processes:
   a) the work must meet the standard in any customer supplied proof for the job or alternatively that a new proof has been produced and approved by the customer
   b) that any final proof must be clearly identified as such
   c) that adequate records are kept to trace the progress and approval of proofing for the job

6. identify the production records and information required to record DTP and pre-press processes for the purposes of quality assurance

7. identify the production records and information required to record DTP and pre-press processes for the purpose of job costing and invoicing.

Outcome 5: Describe the different methods of producing proofs and the strengths and weaknesses of each

Underpinning knowledge

The candidate will be able to

1. state that the colour reproduction of different types of proofs is determined by many factors including:
   a) substrate on which the proof is printed
   b) pigments in the dyes, inks or toners used to produce the proofs
   c) colour calibration of the device used to make the proof
   d) resolution of the image and proofing device
   e) use of colour management software and device profiles
   f) machine printing conditions for wet proofs

2. explain why colours viewed on a screen cannot always match colour proofs produced in printed format

3. explain what is meant by colour space and how that determines what can or cannot be represented on any particular type of proof

4. state that the institutions/systems established to set standards for the printing and graphic communications industry include;
   a) British Standards Institution (BSI)
   b) International Standards Institution (ISO)
   c) Deutsch Industrie Norm (DIN)

5. state that the standards set for print production include:
   a) pre-press
   b) image carriers
   c) machine printing
   d) process inks
   e) substrates

6. identify the colour reproduction, colour classification and colour standards as being:
   a) colour mixture, light and pigment terminology
   b) auto typical colour mixture, colour illusions and perception, juxtaposition, moiré and screen angles
   c) colour classification and colour space, CIE L*a*b*, CMC
   d) colour standards – Specifications for Web Offset Publications (SWOP)
   e) colour viewing standards, BSI 960 Parts 1 and 2 and the metameric effects of artificial lighting
   f) additional process printing, Hi-Fi (CMYK and RGB, up to 7 colour printing), Hexachrome (CMYK plus orange and green), Boosted CMYK (plus light cyan and magenta)

7. state the criteria used to recommend a particular type of proof to a customer, the limitations of certain proofs to which customers need to be made aware, and the importance of having a signed proof from the customer before any processing work is undertaken.

Outcome 6: Describe the methods used to archive DTP and pre-press work

Underpinning knowledge

The candidate will be able to

1. explain why DTP and pre-press work usually has to be archived

2. describe the essential elements of a DTP and pre-press archiving system including:
   a) indexing
   b) identification and location
   c) protection from physical damage or loss
   d) identification of final approved artwork/films/files

3. identify suitable methods of storing digital files as including:
   a) CD or CD-RW
   b) DVD
   c) Tape
   d) Optical Disk

4. state that the legal ownership of DTP and pre-press products such as film, plates, proofs and digital artwork depends on the precise terms of the contract made with the customer which may be specified in the written terms and conditions of sale or purchase

5. state that reasons for archiving original, intermediate and final digital artwork, as well as all intermediate and final films and proofs produced during the processing of a job, include the possible need to identify the cause and/or responsibility for any faults in the finished product.