



TECHNICAL DESCRIPTION
Graphic Design Technology



world **skills**
international

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WorldSkills International, by a resolution of the Technical Committee and in accordance with the Constitution, the Standing Orders and the Competition Rules, has adopted the following minimum requirements for this skill for the WorldSkills Competition.

The Technical Description consists of the following:

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Liam Corcoran
Technical Committee Chair

1. INTRODUCTION

1.1 Name and description of skill

1.1.1 The name of the skill is [Graphic Design Technology](#).

1.1.2 Description of skill

[Graphic Designers](#) typically work in advertising agencies, corporate advertising departments, reproduction plants or printers. [Graphical Designers](#) can be called [ADs \(Art Directors\)](#), [Production ADs](#), [Assistant ADs](#), [Advertising Assistants](#) and [Graphical Designers](#). In reproduction plants and printers they may be called [Printing Surface Producers](#) or [Printing Assistants](#).

[Two-dimensional objects](#) may involve any kind of printed material. [Planning three-dimensional objects](#) involves technical design and creating a visual image of the object (such as packaging). Skills include producing ideas, creating layouts, digital editing, typography, producing graphics, typesetting, printing and presenting the final product.

The skill covers every form of graphic interpretation, including 2D design, graphic design for 3D format and image manipulation.

- [2D design](#) may include all kinds of printed matter (refer [Section 2 – Competency and Scope of Work](#)).
- [3D design](#) may include both the technical construction of the 3D element (such as packaging) and the visual design of the surface (refer [Section 2 – Competency and Scope of Work](#)).
- [Image manipulation](#) may include the use of technical manipulation in preparation for printing (refer [Section 2 – Competency and Scope of Work](#)).

1.2 Scope of application

1.2.1 Every Expert and Competitor must know this Technical Description.

1.2.2 In the event of any conflict within the different languages of the Technical Descriptions, the English version takes precedence.

1.3 Associated documents

1.3.1 As this Technical Description contains only skill-specific information it must be used in association with the following:

- [WSI - Competition Rules](#)
- [WSI - Competition Manual](#)
- [WSI - Online resources](#) as indicated in this document
- [Host Country - Health and Safety regulations](#)

2. COMPETENCY AND SCOPE OF WORK

The Competition is a demonstration and assessment of the competencies associated with this skill. The Test Project consists of practical work only.

2.1 Competency specification

Development of ideas

Knowledge and understanding:

- Understand the importance of the client ideas and needs in the design development

Competitors shall be able to:

- Analyse carefully the module description
- Inspect the supplied material included in the module
- Take account of personal artistic competencies
- Take account of the available software resources
- Take account of the time limitation
- Develop original ideas related to the module

Specific target market

Knowledge and understanding:

- Understand different target markets and the elements of design which satisfy each market

Competitors shall be able to:

- Analyse the target market description and the product to be delivered
- Critique own draft ideas, colour and type choices
- Analyse the eventual impact of each of these items on the target market
- Select an idea linked to the target market

Design consistency

Knowledge and understanding:

- Understand the principles of design which provide consistency to a finished design

Competitors shall be able to:

- Analyse all the items to be delivered for the production
- Choose an effective and efficient graphic approach
- Select an idea that can be reproduced
- Make compromise and adjustment to ensure consistency
- Create synergy over many items of a module

Creation of the layout

Knowledge and understanding:

- Understand the principles of an aesthetic and creative design

Competitors shall be able to

- Choose colours related to the original idea and target market
- Take into consideration the impact of any required elements to be added
- Use all the required elements to create the design
- Respect the corporate guidelines supplied with any specific items
- Choose the typography related to the original idea and target market
- Format the typography to make it legible and consistent
- Use and place all the graphics into a well balanced design
- Keep the original design idea and amplify its visual impact
- Transpose an idea into an aesthetically pleasing and creative design

Creation of specific elements of design

Knowledge and understanding:

- Understand the conception of specific elements of design

Competitors shall be able to:

- Draw or redraw logos, charts, graphs, maps or any other graphic element
- Create original illustrations or background using vector application
- Create original photomontage or background using pixel based application
- Close cut, clone, blend and create effects on images
- Create logos and headers
- Create specific elements of design

Technical production of the layout

Knowledge and understanding:

- Knowledge of the common printing processes
- Knowledge of the technical production of final layout appropriate to the printing processes
- Understand the printing industry quality standards.

Competitors shall be able to:

- Analyse the different steps of the production of the original design
- Plan the day's production schedule according to available time
- Use and adjust images without altering their original quality
- Adjust resolution and colour mode of images
- Convert images from one mode to another using ICC colour profile
- Adjust tools preferences and colour preferences in applications
- Use the exact measurements
- Introduce all the required elements
- Inspect all the supported files and adjust it
- Use the appropriate application and tools to achieve his work
- Use spot and CMYK colours
- Use spot colour to simulate selective varnish or die line
- Trace or retrace die line using appropriate application
- Expand graphics elements to produce exact bleed value
- Keep the bleed area free of any undesirable elements
- Add any necessary cropping or folding lines in the layout
- Apply overprinting onto specific graphic elements
- Produce exact trapping value on vector graphics
- Produce the final layout of the design

Print and saving/archiving work

Knowledge and understanding:

- Understanding of the capabilities of the desktop or laser printer supplied
- Knowledge of different saving file formats for images, illustrations and layouts

Competitors shall be able to:

- Choose the appropriate saving files formats for images
- Choose the appropriate saving files formats for illustrations
- Choose the appropriate saving files formats for layouts
- Consider all the requirements of the production file format
 - Export the final native files
 - Include colour profile
 - Include trimming lines, folding lines, registration marks and document information
 - Inspect and validate the quality
 - Control the total ink limit
 - Keep solid black colour present
 - Remove unnecessary colours

- Create complete archiving folders for further usage
- Include linked images, fonts, native files and production file format when archiving
- Print proofs at different steps of production
- Make necessary corrections and modifications during the whole process
- Print final layout in colour with bleed, trimming and folding lines, registration marks and document information
- Prepare and mount final work on board for presentation
- Assembly of 2D elements to create a 3D mock-up

2.2 Theoretical knowledge

2.2.1 Theoretical knowledge is required but not tested explicitly.
Refer to sections 1.1.2 and 2.1.

A glossary of common industry terminology can be found in Appendix 1.

2.2.2 Knowledge of rules and regulations is not examined.

2.3 Practical work

The Competition shall be carried out on an Apple Macintosh.

The Competitors may not use the Internet during the Competition.

Idea and concept - Ideas and concepts may be developed on the computer or by means of thumbnails or rough sketches according to the competitor's own preference. Sketches will not be assessed in the competition.

Layout - The design shall be electronically developed using specific software programs of the individual competitor's choice.

Final design - The final result of the design and layout process shall be printed and presented for marking and evaluation within the allotted time.

Printouts, presentation and storing -

- When the project is completed, the competitors shall store and print the results and present as requested for evaluation and exhibition purposes as stated in the written project description.
- The final and preliminary files are also to be saved in a suitably named folder according to instructions in the given project papers.
- Some items shall be made manually for presentation, such as graphic design in 3D models according to instructions in the given project papers.
- Competitors shall not go to collect their printouts from the printer. They must ask an expert to pick up the print out for him.
- All printouts must be supplied with the number of workstation; otherwise the expert will not be able to deliver the print accordingly in due course.
- Competitors are solely responsible for saving their own files in case of a computer crash. It is also the competitor's own responsibility to prepare printable files for output through the laser printer for project presentation. No extra time will be given to compensate for such time-lost
- In the event of technical computer problems occurring which are not operator related, a competitor is able to request additional time to compensate. The final decision will be at the discretion of the Chief Expert.

3. THE TEST PROJECT

3.1 Format / structure of the Test Project

The format of the Test Project is a series of four standalone modules.

- **Editorial design**

(magazine cover or inside, leaflet, restaurant's menu, booklet, etc.)
printed on sheetfed or web offset press, using process and/or spot colours
could include headers, sub-headers and text, images, graphics or tables, master element, etc.

- **Packaging design**

(regular box, tray box, tear-open packaging, label, etc)
printed on sheetfed offset press or in flexography, using process and/or spots colours;
could include text and headers, ingredients list, brand name, images, barcode, die line, etc.

- **Corporate and information design**

(business card, logo, letter head, signalisation, symbols, etc)
printed on sheetfed offset press or in silkscreen printing, using process and/or spots colours;
could include a few lines of text, illustration, logo creation, symbol, vector drawing, etc.

- **Advertising and display design**

(poster, banner, billboard, car mapping, full page add, etc.)
printed on sheetfed offset press or on inkjet plotter, using process and/or spot colours; could
include a few lines of text or a slogan, image manipulation or photomontage, the use of large
files, etc

3.2 Test Project design requirements

Typical modules might include:

- Digitising images, optimizing them by specifying correct values and improving them by using all appropriate tools for adjustments and manipulations.
- Drawing and redrawing information design elements like diagrams, graphs and maps.
- Tracing and vectorising pixel-based logotypes and simple pictures like symbols and icons.
- Converting digital manuscripts into typographic texts.
- Text to be used in projects should always be in English (or they will be accompanied by texts in other languages). Translations (if necessary) have to be done by the participating countries.
- Designing most kinds of printed matter, such as books and book covers, magazines and magazine covers, newspapers, logos and logotypes, corporate identity elements (letterheads, business cards etc.), posters, advertisements, folders, etc.
- Graphic design in 3D format, such as packages, grocery bags, etc.

3.3 Test Project development

The Test Project MUST be submitted using the templates provided by WorldSkills International (<http://www.worldskills.org/competitionpreparation>). Use the Word template for text documents and DWG template for drawings.

3.3.1 Who develops the Test Project / modules

The Test Project / modules are developed by all Experts.

3.3.2 How and where is the Test Project / modules developed

The Test Project / modules are developed jointly on the Discussion Forum.

When a minimum of 50% + 1 of Experts from participating countries are registered on the Skill 40 discussion forum the Chief Expert will create four working groups of experts for the development of each of test project modules. The Chief Expert will instruct the WorldSkills International Secretariat to create the four working groups on the forum. Each group will be required to develop a test project for a specified module selected by the Chief Expert. The members of the specified groups

will only have access to their own working group on the forum not to the other forums groups. The Skill Management Team as endorsed by the WSI Technical Committee will administrate all forums.

To ensure the topics developed by the working groups are not similar, the Skill Management Team (or another nominated third party agreed on by the expert group) will have access to all working groups and monitor the topics for similarity. In the event of topics been similar the Skill Management Team will be required to indicate to one or both groups that they will need to change the topic of their project.

Each working group will be required to nominate a group leader and that person will be responsible for delivering the project in accordance to the timeline fixed by the Chief Expert.

If the group fail to nominate a group leader, the chief expert will nominate the group leader.

3.3.3 When is the Test Project developed

The Test Project and the marking scheme is developed and completed by 2 months prior to the current Competition and emailed to the Skill Management Team for examination of conformity.

On arrival at the Competition the modules must be completed ready to be presented to all Experts for final consideration and adjustment

The modules 1, 2, 3 and 4 will not necessarily be presented in that sequence during the 4 days of Competition. The Skill Management Team may decide in advance a new order of presentation to fit into the Competition schedule or numbers may be drawn in the presence of the Experts to determine the sequence of presentation of the 4 modules.

3.4 Test Project marking scheme

Each Test Project must be accompanied by a marking scheme proposal based on the assessment criteria defined in Section 5.

3.4.1 The marking scheme proposal is developed by the person(s) developing the Test Project. The detailed and final marking scheme is developed and agreed by all Experts at the Competition.

3.4.2 Marking schemes should be entered into the CIS prior to the Competition.

3.5 Test Project validation

This will be demonstrated by producing a timeline specifying the expected amount of time to realize each step of the total production. That timeline will not be in the test project, just associated to.

3.6 Test Project selection

The Test Project is selected as follows:

Each project development group will work on a specified module decided by the Chief Expert. The Experts of a project development group may work all together on one unique project or they can work individually on different projects. At mid-time of the development process, they will choose, by voting, one project and deliver marking sheet and timeline for this project. The group leader will supervise that process. A final project may consist of more than one task.

3.7 Test Project circulation

The Test Project is circulated via WorldSkills International website as follows:

Test Project modules are not circulated.

3.8 Test Project coordination (preparation for Competition)

Coordination of the Test Project will be undertaken as follows:

The Chief Expert with selected Experts designated to lead each project development group are responsible for ensuring that the requirements of Section 2 – Competency and Scope or Work are complied with.

3.9 Test Project change at the Competition

Not applicable

3.10 Material or manufacturer specifications

Hardware and software specifications will be made available to Experts on the Infrastructure list provided by the Host Country and WorldSkills International. The Infrastructure Lists can be found at <http://dev.worldskills.org/il/pdf/index.php?lid=92>.

4. **SKILL MANAGEMENT AND COMMUNICATION**

4.1 Discussion Forum

Prior to the Competition, all discussion, communication, collaboration and decision making regarding the skill must take place on the skill-specific Discussion Forum (<http://www.worldskills.org/forums>). All skill-related decisions and communication are only valid if they take place on the forum. The Chief Expert (or an Expert nominated by the Chief Expert) will be moderator for this forum. Refer to Competition Rules for the timeline of communication and competition development requirements.

4.2 Competitor information

All information for registered Competitors is available from the Competitor Centre (<http://www.worldskills.org/competitorcentre>).

This information includes:

- Competition Rules
- Technical Descriptions
- Test Projects
- Other Competition-related information

4.3 Test Projects

Circulated Test Projects will be available from [worldskills.org](http://www.worldskills.org) (<http://www.worldskills.org/testprojects>) and the Competitor Centre (<http://www.worldskills.org/competitorcentre>).

4.4 Day-to-day management

The day-to-day management is defined in the Skill Management Plan that is created by the Skill Management Team led by the Chief Expert. The Skill Management Team comprises the Jury President, Chief Expert and Deputy Chief Expert. The Skill Management Plan is progressively developed in the six months prior to the Competition and finalised at the Competition (agreed by Experts and submitted to the Chair/Vice Chair of the Technical Committee). The Chief Expert is to regularly share updates of the Skill Management Plan via the Forum.

5. **ASSESSMENT**

This section describes how the Experts will assess the Test Project / modules. It also specifies the assessment specifications and procedures and requirements for marking.

5.1 Assessment criteria

This section defines the assessment criteria and the number of marks (subjective and objective) awarded. The total number of marks for all assessment criteria must be 100.

Section	Criterion	Marks		
		Subjective (if applicable)	Objective	Total
A	Creative process	8		8
B	Final design	32		32
C	Computer usage		16	16
D	Manual abilities		8	8
E	Knowledge of the printing industry		16	16
F	Saving and file format		20	20
Total =		40	60	100

5.2 Subjective marking

Scores are awarded on a scale of 1 to 10

5.3 Skill assessment specification

Section A - Creative process Subjective - Marks 2

- A.1 Ideas and originality
- A.2 Understanding the target market
- A.3 Unity and relationship between all tasks

Section B - Final design Subjective – Marks 8

- B.1 Quality of the visual composition (aesthetic appeal and balance)
- B.2 Impact of the design (visual strength, communication power)
- B.3 Quality of the typography (choice of type, legibility and formatting)
- B.4 Quality of the colours (choice, balance, harmony)
- B.5 Quality of image manipulation (retouch, cloning, blending, colour adjustment, etc)
- B.6 Quality of redrawing objects in vector application
- B.7 Quality of the design of other elements (charts, graphs, tables, maps, etc)
- B.8 Quality of the mounted presentation or the 3D assembly

Section C - Computer usage Objective – Marks 4

- C.1 Resolution of linked, embedded or original images as required in the task
- C.2 Colour mode of linked, embedded or original images as required in the task
- C.3 Image dimensions as required in the task
- C.4 Use of style sheets or master elements in layout as required in the task
- C.5 Final dimensions of layout as required in the task
- C.6 All required text is present
- C.7 All required elements are present
- C.8 Respect of corporate guidelines appropriate to the task

Section D - Manual abilities Objective – Marks 2

- D.2 Mounting printouts on board for presentation
- D.3 Assembling printouts in 3D presentation

Section E - Knowledge of the printing industry Objective – Marks 4

- E.1 Bleed value applied in layout file or PDF as requested in the task
- E.2 Folding lines, trim and registration marks supplied as requested in the task
- E.2 Trapping value applied in illustrator file as requested in the task
- E.3 Overprinting applied in layout file or PDF as required in the task
- E.4 Spot and CMYK colours used in layout or PDF file as required in the task
- E.7 Die line supplied as required in the task

Section F - Saving and file format Objective – Marks 5

- F.1 File formats as required in the task
- F.2 ICC profile in images, PDF or layout file as required in the task
- F.3 Saving in a specified PDF format as required in the task
- F.5 Final production folder saved as required in the task

Total = 25 marks per module (Objective 15 + Subjective 10)

5.4 Skill assessment procedures

The same presentation will be used for each module; each development groups will select the aspects that fit in their project. If there is more than one task in a module (ex : creating a logo and a poster are 2 tasks), the aspects could be applied for each task if necessary (ex. : B 6 could be mark once for the logo and once again for the poster).

6. SKILL-SPECIFIC SAFETY REQUIREMENTS

Refer to Host Country Health & Safety documentation for Host Country regulations.
Not applicable

7. MATERIALS & EQUIPMENT

7.1 Infrastructure List

The Infrastructure List lists all equipment, materials and facilities provided by the Host Country.

The Infrastructure List is online (<http://www.worldskills.org/infrastructure/>).

The Infrastructure List specifies the items & quantities requested by the Experts for the next Competition. The Host Country will progressively update the Infrastructure List specifying the actual quantity, type, brand/model of the items. Host Country supplied items are shown in a separate column.

At each Competition, the Experts must review and update the Infrastructure List in preparation for the next Competition. Experts must advise the Technical Director of any increases in space and/or equipment.

At each Competition, the Technical Observer must audit the Infrastructure List that was used at that Competition.

The Infrastructure List does not include items that Competitors and/or Experts are required to bring and items that Competitors are not allowed to bring – they are specified below.

7.2 Materials, equipment and tools supplied by Competitors in their toolbox

- Pantone swatches or similar swatch books
- Sketching paper and pens
- Calibration charts
- Keyboard in own language
- Tablet, digitiser, pen-light, joystick and mouse which the Competitor may prefer.
- Cutting knife, scissors,
- Ruler, steel ruler,
- Double sided tape, glue stick, etc

7.3 Materials, equipment and tools supplied by Experts

- Experts are required to bring their Competitor's software in the language of their choice other than English. For example: CS Suite, Quark Xpress, Font manager or similar software.
- All software brought to the Competition must be on the original disks with the original key.
- All software will be installed by the Workshop Supervisor in presence of the compatriot Expert on the days prior to Competitor familiarisation.
- Where Adobe Creative Suite is supplied and pre-installed in English by the Host Member, Competitors/Experts using English only are not required to bring their own software.
- Two months prior to the Competition, the compatriot Expert will deliver a font set (50 fonts) to the SMT; all font sets will be available to all competitors during the Competition.

7.4 Materials & equipment prohibited in the skill area

Competitor should NOT bring:

- Extra RAM
- Extra hard drives
- Books with design references
- Images/clip art
- Mounting boards, cutting mat
- No electronic devices (cell phones, iPod, etc)) Competitors may bring music CDs (these CDs will be transferred to their workstations by Experts or the Workshop Supervisor.

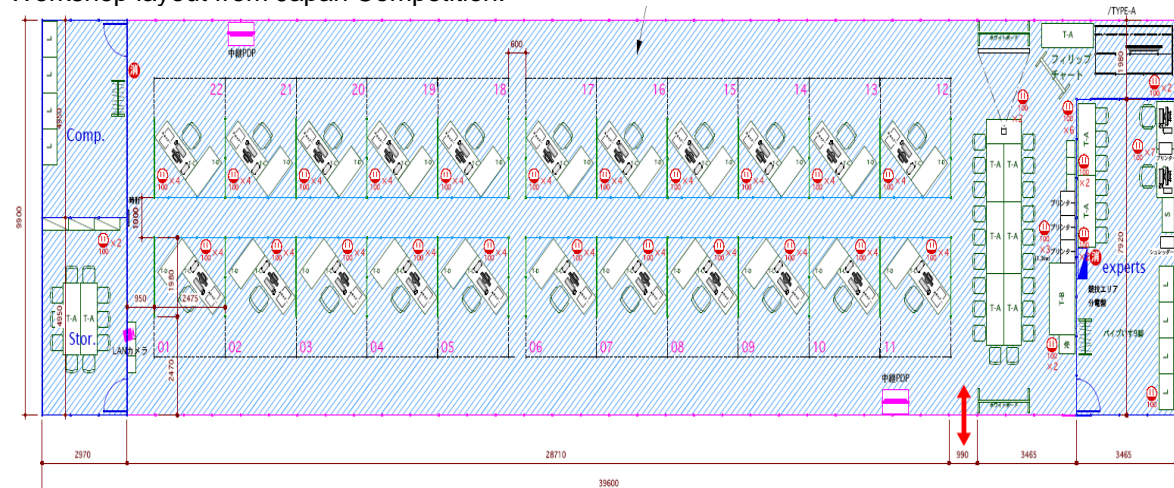
The Internet will not be available to Competitors.

7.5 Sample workshop layouts

Workshop layouts from Calgary are available at:

http://www.worldskills.org/index.php?option=com_halls&Itemid=540

Workshop layout from Japan Competition:



8. MARKETING THE SKILL TO VISITORS AND MEDIA

8.1 Maximising visitor and media engagement

Following is a list of possible ways to maximise visitor and media engagement

- Try a trade
- A conversation area has to be established for experts and visitors (shut off from the work area).
- For promotional purpose a beamer will show (in rota) competitors desktops to the spectators.
- Posters will be hung that will explain the task of the competitors.
- The walls of the stand will be decorated with graphic design works.

8.2 Sustainability

- Recycling
- Use of 'green' materials
- Use of completed Test Projects after Competition

9. APPENDIX

9.1 Appendix 1.1 – Terminology Glossary

Bleed: The area of illustrations, which extends beyond the trimmed edge of a printed page and the extra width, added to artwork to make bleeding possible. That area must be free of trim, registration and folding lines.

CMYK (an acronym for cyan, magenta, yellow and black): The four colours in the four-colour process. The primary additive colours, red, blue and green, when added together, produce white light. When overlapped, red and blue form magenta, green and red form yellow, and green and blue form cyan. These resulting colours are subtractive and when added together, they produce a dark brown. In order to create an accurate photographic reproduction, the colour black must be added.

Colour correction: The process of simulating or improving the colours or original shade by using colour-management software. Often, an inkjet printer serves as the CMYK output device. This process is important because spot colours cannot be acceptably reproduced with the CMYK colour model without making adjustments.

Colour filter: Filters used in making colour separations, red, blue, green.

Colour profile: The colour profile of an image input or output device (scanner, monitor, printer, printing press, etc.) is an element of colour management which indicates how the colour information supplied by the device behaves with respect to a super-ordinate, device-neutral colour system (e.g. the CIELAB colour space). Manufacturers supply colour profiles with professional devices.

Colour separations: The process of preparing artwork, photographs, transparencies, or computer generated art for printing by separating into the four primary printing colours or spot colours.

Colour space : A colour space is the set of all colours which can be portrayed by a single colour system. Well-known colour systems are CIE Lab by the CIE, Kodak's PhotoYCC, RGB used in digital cameras and CMYK used for printing. CIE Lab and PhotoYCC are suitable for processing and storing images. The colour spaces of the RGB and CMYK systems on the other hand are noticeably smaller. In addition CMYK data is only ever useful for a given printing process and cannot be used again in other output media.

DCS: A file format that can be used to pre-separate images or include spot channels in colour images.

Dot gain: A term that refers to the "weight gain" of halftone dots. During the printing process, the half-tone dots increase in size. Because this is an inherent part of the printing process, the effect of increased dot size should be anticipated ahead of time. The change in size of a printing dot from the film to the printed sheet, expressed as a percentage; an increase in dot size from 50 percent to 60 percent is called a 10 percent gain.

EPS (encapsulated postscript): A file format that allows the carrying of different information between software programs.

Gradation: The transition between colours or shades. Gradation occurs by mixing percentages of dominant and secondary colour and then altering those colours to bring about a change. The gradation (or gamma value) of a picture –such as a photograph or an electronic image stored on a computer –indicates the steps in which the gray values of the original are rendered. With a flat gradation, there are many steps between white and black, while a steep gradation has fewer steps or even just pure black-and-white. This is also referred to as a "soft" to "hard" rendition

Hairline : A very fine rule. Also a very fine line making up part of a character.

ICC Profile : A colour profile produced under the International Colour Consortium (ICC) guidelines.

JPEG : A file format for compressing image files. It can reduce the file size by up to 95 percent. It involves a loss of image information, although the degree of compression can be selected such that these losses remain within acceptable limits.

Knock out: To mask out an image.

The absence of printing inks in a specified area. An object of a given colour is often printed over an identically shaped knockout of other colours, to avoid mixing inks in that area. The alternative is an overprint, in which one object is printed on top of another.

Line art: Also named bitmap, a colour mode using only black and white pixels to represent images.

PDF : A file format for the transfer of designs across multiple computer platforms. PDF is a universal electronic file format, modeled after PostScript language and is device- and resolution-independent. Documents in the PDF format can be viewed, navigated and printed from any computer, regardless of the fonts or software programs used to create the original

PSD: The default file format used by Photoshop to save images.

Screen ruling : Screen ruling refers to the number of dots per unit length. Common specifications are l/cm (lines per cm) and lpi (lines per inch). '60 screen' means 60 l/cm and corresponds to approx. 150 lpi.

Spot colours: These colours are printed as solid areas (or as tints) and used when fewer than four colours are needed or when the four-colour process (CMYK) is unable to accurately reproduce a PMS colour.

Spread: An option used in software programs to print out double pages side by side.

TIFF: A file format for exchanging bitmapped grayscale and colour images among applications. TIFF files can be compressed by a variety of methods