Unit 34: Image Manipulation Using Computer Applications

Unit code: A/502/4980

QCF Level 3: BTEC National

Credit value: 10

Guided learning hours: 60

● Aim and purpose

This unit aims to develop learners' skills and understanding in technical and creative image manipulation, using a variety of processes and for different purposes.

● Unit introduction

The use of computers by artists and designers is widespread. Digital image manipulation is an extremely exciting and dynamic area with technologies continuing to advance that enable new ways of communicating and combining different art forms. Image manipulation skills are highly sought after in the industry so it is important that artists and designers embrace new technologies and develop the skills, knowledge and understanding needed to work in this area. This will allow them to communicate ideas effectively in a highly competitive and progressive sector, which span areas such as graphics and animation, film and photography to fashion and fine art.

Learners will develop an understanding of how digital image manipulation software is used in many areas of the art and design industry. They will also develop an understanding of the potential benefits of using digital techniques and processes in order to develop their own creative work. It is expected that digital techniques and use of equipment will be taught as a foundation learners can build on to develop an understanding of skills in relevant technologies and associated processes. Learners will then explore these aspects practically by learners in developing art and design work which communicates in contemporary and innovative ways.

Learners will be given themes or specific assignment briefs to focus their work and guide them through investigating and experimenting with relevant hardware and software. Briefs will be designed within a relevant vocational context and take into consideration new industry developments in computer hardware and software technology. These skills will help learners progress and adapt to a work environment where digital image manipulation plays an increasingly important role.

● Learning outcomes

On completion of this unit a learner should:

1   Understand how image manipulation techniques are used in the work of others

2   Be able to digitise source materials

3   Be able to originate work using image manipulation hardware and software

4   Be able to present own design outcomes.

Unit content

1 Understand how image manipulation techniques are used in the work of others

Image manipulation: software; techniques eg filtering, resolution, layering, using type, adjusting, distorting, vector, bitmap, effects, cloning, masking, drawing, transforming, rotoscoping, exporting

Work of others: primary sources eg galleries, exhibitions, websites, digital media, guest speakers; secondary sources eg internet, books, magazines, design examples

Variety of media: eg web, animations, magazines, illustrations, advertising, photography, fashion, fine art, illustration, computer games, video

2 Be able to digitise source materials

Digitise: input materials; digital technology eg scanner, touch screen, graphic tablet, video camera, digital camera; digital artefacts; file sizes; layers eg flattening, adjustments, transparency; resolution issues eg for screen, for print, colour gamut, DPI, bits, pixels; file formats eg JPEG, TIFF, GIFF, PNG

Source materials: qualities eg technical, aesthetic; fitness for purpose (primary, secondary); prepare for input eg photography; electronic files, drawings, text files, image downloads, video, animation; 2D; 3D eg drawings, paintings, photocopies, writing, prints, sculptures, models, installations, textiles, mixed media; other sources eg natural objects, found objects, printed material

3 Be able to originate work using image manipulation hardware and software

Image manipulation hardware and software: hardware eg computers, scanners, digital cameras; software eg current DTP applications, image manipulation (Photoshop, GIMP), vector graphics, video editing, authoring, web design, word-processing packages

4 Be able to present own design outcomes

Present: eg portfolio presentation, exhibition, critiques, formal presentation; standard of presentation eg mounted prints, digital files, audio, visual presentations

Assessment and grading criteria

In order to pass this unit, the evidence that the learner presents for assessment needs to demonstrate that they can meet all the learning outcomes for the unit. The assessment criteria for a pass grade describe the level of achievement required to pass this unit.

Assessment and grading criteria		
To achieve a pass grade the evidence must show that the learner is able to:	To achieve a merit grade the evidence must show that, in addition to the pass criteria, the learner is able to:	To achieve a distinction grade the evidence must show that, in addition to the pass and merit criteria, the learner is able to:
P1 evaluate examples of the work of others [SM, RL, IE, TW, CT]	**M1** identify and evaluate purposefully relevant examples of the work of others that use image manipulation techniques	**D1** identify independently and evaluate examples of others work that use image manipulation techniques
P2 prepare source material for digitising [CT, SM, IE]	**M2** prepare and digitise considered source materials consistently	**D2** prepare and digitise independently, exciting source materials that exploit the full potential of image manipulation techniques
P3 digitise source material [CT, EP, IE, SM]	**M3** produce effective solutions for defined outcomes that use suitable image manipulation hardware and software, against a given theme or assignment brief	**D3** present independently, own design outcomes demonstrating an informed opinion about the use of digitised materials and image manipulation techniques, against a given theme or assignment brief.
P4 produce design outcomes using suitable image manipulation hardware and software [IE, SM, CT, EP]	**M4** present own design outcomes effectively reaching coherent conclusions.	
P5 present own design outcomes. [SM, CT, EP]		

PLTS: This summary references where applicable, in the square brackets, the elements of the personal, learning and thinking skills applicable in the pass criteria. It identifies opportunities for learners to demonstrate effective application of the referenced elements of the skills.

Key	IE – independent enquirers	RL – reflective learners	SM – self-managers
	CT – creative thinkers	TW – team workers	EP – effective participators

Essential guidance for tutors

Delivery

Successful delivery of this unit should give learners opportunities to investigate the potential of image manipulation techniques and develop skills relevant to their chosen specials/pathway.

Learners will become acquainted with the processes associated with image manipulation techniques. The use of demonstrations and discussion is suggested to contextualise learners' ideas with the given theme or assignment brief. Learners will need to be familiar with relevant terminology used in this area of design and should be guided through the design process from idea generation, using grids and page hierarchies, to possible production issues and evaluating their own final designs.

Most of the work for this unit will be carried out in studios or workshops but the learner work can be contextualised further by visiting galleries, exhibitions and studios. If possible, professional practitioners should also be involved through seminars, workshops or delivering a client-led assignment to put the unit in context within the chosen specialism/pathway.

Tutors could consider integrating delivery of this unit with other relevant units learners are taking as part of their programme of study. Units such as *Ideas and Concepts in Art and Design, Communication Through Art and Design* and *Words and Images in Graphic Design* could be integrated successfully within an assignment brief.

The assignment brief asks learners to research and develop ideas and final outcomes for a set of three postcards that depict an historical event for the past, one of the present (within the last 12 months) and a predicted event for the future. Learners can be given a selection of themes to choose from including (but not exclusively) celebrities, war, environmental, economic and science. Research and ideas can be generated in sketchbooks, either paper based or PDF. Ideas and final pieces can be developed using various digital and traditional techniques such as sketching, scanning, photography, importing, thumbnails, marker pens, industry standard software – although the emphasis is the finished work being produced using image manipulation techniques.

For learning outcome 1, learners should be directed towards examples of the work of others. Learners could look at early examples of image manipulation up to current day examples used in mass media. Learners will be encouraged to form opinions about the examples they research, considering intended message, purpose and applications. Learners should also be encouraged to investigate examples using the internet, libraries and multi-media sources which will inform their learning by encouraging analytical and discussion skills.

It is expected that for learning outcomes 2 and 3 workshops in hardware and software use will form the foundation that learners can build on to develop their own creative ideas and solutions. The use of workshops and tutor demonstrations, as shown in the Outline learning plan, would provide learners with guidance on the correct use of equipment and processes. It may be useful to analyse a variety of examples of image manipulation to further emphasis how technologies have been applied. Learners should be encouraged to experiment with their own ideas and final outcomes.

To further contextualise learning outcomes 2 and 3 learners should be guided through the issues of copyright that may be relevant to their specialism/pathway and could affect the digitising of source materials and the production of final outcomes.

For learning outcome 3 learners will need to demonstrate that they can develop final outcomes against a given theme or assignment brief using relevant hardware and software and variety of digitised source materials. In developing digital work learners should be encouraged to be experimental but also guided through the correct use of industry standard image manipulation software for images and vector graphics programs. Although this unit concentrates on image manipulation techniques, learners should be given the opportunity to develop ideas into final outcomes using traditional media such as drawing, painting, collage and mixed media alongside digital media.

Learning outcome 4 involves learners being taught how to evaluate their own work effectively against a set of accepted criteria and the assignment brief. It would be beneficial at this stage for learners to refer back to the brief and assess their work against it. Learners should be shown how to present their work in a variety of ways including a portfolio, mounted work for an exhibition, formal or informal presentations and critiques.

Outline learning plan

The outline learning plan has been included in this unit as guidance and can be used in conjunction with the programme of suggested assignments.

The outline learning plan demonstrates one way in planning the delivery and assessment of this unit.

Topic and suggested assignments/activities and/assessment
Unit introduction.   **Assignment 1**: Past, Present and Future Postcards   Introduction to brief   • Discussion – initial thoughts   • Potential, constraints, contexts,   • Possible outcomes   • Idea generation.
Discussion and examples of work that incorporate image manipulation techniques   • Past and present examples relevant to specialism/pathway   • Different media – web, print, photography, fine art   • Literal and abstract examples.
Supported study time   • Individual learning plans   • Production of sketchbook work, mood boards, thumbnails and roughs   • Annotation and research   • Idea development   • Informal discussions.

Topic and suggested assignments/activities and/assessment
Workshops Source materials – depending on assignment brief/specialism/pathway ● Collage ● Drawing, painting (digital/traditional) ● 3D ● Mixed media ● Photography. Technical – depending on assignment brief/specialism/pathway ● Software/hardware training – scanning, cameras, image manipulation software workshops, storing work, tutor demonstrations.
Learner initiated study ● Individual learning plans ● Idea development ● Time management ● Formal discussion with tutors ● Assignment feedback ● Evaluations ● Formal and informal presentation/discussion ● Production of ideas and final outcomes.
Peer assessment ● Individual learning plans ● Idea generation and development ● Interim critique ● Final critique ● Discussion group.
Possible guest speaker ● Relevant to specialism/pathway.
Field trip ● Exhibition ● Museum ● Studio.
Unit review and assessment.

Assessment

To achieve a pass grade learners will be expected to provide evidence in the form of a sketchbook, electronic or paper based, design boards, annotated notes etc that show they have investigated the work of others, Learners will need to be guided on what can influence the development of their work and how to generate ideas, incorporating these findings, using basic idea generating techniques. Learners should produce evidence through sketchbook annotation, whether digital or paper based, interim critiques, computer printouts, individual learning plans that cover the learning that has taken place, including the generation and development of ideas, the production, presentation and review of final outcomes. Evidence of developing skills in image manipulation techniques can be provided through witness testimonies, use of screenshots as learners progress their work, question and answer evaluation.

To meet the criteria for merit, learners must provide a variety of evidence in the form of digital or paper-based annotated sketchbooks, design boards, discussion evidence that shows they have investigated the work of others effectively and can use image manipulation techniques confidently within their work. Learners will demonstrate competence in applying the results of their investigations to the origination and development of page layouts. Learners should show that they have an informed understanding of researching examples of others' work to inform their own idea generation and image manipulation techniques to produce final outcomes against a defined theme/assignment brief. A coherent approach to the development of ideas and final solutions should be evident within learners' work. Justification of these ideas and solutions should also be evident in the form of written notes, verbal feedback and possibly learning journals that include technical notes and screenshots.

Learners will produce final designs that show a consistent and thoughtful process of decision making has taken place. Learners will present their work for a given brief coherently to an effective standard of presentation, identifying how research, idea development and the development of image manipulation skills have impacted on their work.

To meet the criteria for distinction, learners will need to demonstrate they have a considered understanding of image manipulation techniques and can use these techniques confidently within their own work. They should show that they can apply this understanding creatively and independently to the set brief, conveying comprehensive knowledge of how research into the work of others and idea generation using digitised source materials have influenced their final design solutions. Learners should demonstrate confidence in the presentation of highly imaginative work produced using a variety of digitised source materials to create computer-generated outcomes. Work should be presented to a high standard.

Programme of suggested assignments

The table below shows a programme of suggested assignments that cover the pass, merit and distinction criteria in the assessment and grading grid. This is for guidance and it is recommended that centres either write their own assignments or adapt any Edexcel assignments to meet local needs and resources.

Criteria covered	Assignment title	Scenario	Assessment method
P1, P2, P3, P4, P5 M1, M2, M3, M4 D1, D2, D3	**Assignment 1**: Past, Present and Future Postcards	A designer is briefed to produce a set of three postcards that depict an historical event of the past, one for the present (within the last 12 months) and a digital postcard sent from the future.	Evidence to include the following. Sketchbook (paper based or PDF) consisting of research into examples of work of others, annotated notes Selection, preparation and experimentation of suitable source materials, annotated notes. Development of ideas (experiments with design ideas using traditional and digital media) Final piece, using image manipulation techniques, mounted to a professional standard, formal presentation/critique that incorporates an overall evaluation of learner work against a given theme, assignment brief and set of criteria.

Links to National Occupational Standards, other BTEC units, other BTEC qualifications and other relevant units and qualifications

This unit forms part of the BTEC Art and Design sector suite. This unit has particular links with the following unit titles in the BTEC Art and Design suite:

Level 1	Level 2	Level 3
Introduction to Graphic Design Briefs	Working with Graphic Design Briefs	Computers in Art and Design
Introduction to Creative Use of Computers	Working to Interactive Media Brief	Digital Storytelling
		Digital Image Capture and Editing

National Occupational Standards

This unit also provides development opportunities for some of the underpinning skills, knowledge and understanding of the following National Occupational Standards:

Skillset Sector Skills Council

- P1   Store and Retrieve Photographic Equipment and Material
- P2   Organise and Carry Out Photographic Assignments
- P3   Take Standardised Portrait Photographs
- P4   Take Standardised Still-Life Photographs
- P5   Take Specified Photographs
- P6   Conceive and Take Photographs
- D2   Carry Out Specified Image Scanning
- D3   Plan and Produce Scanned Images
- D4   Carry Out Specified Image Editing
- D5   Plan and Produce Edited Images
- D6   Prepare for, and Produce, Image Output
- D7   Contribute to the Effectiveness of Imaging Activities
- D8   Send and Receive Image Data Files by Digital Means
- D11   Edit Images Using a Digital Processing Station.

Essential resources

Specialist graphic design studios and digital workshops will be required. These should be equipped with appropriate hardware, software and materials in order to fulfil the practical work in this unit. Access to digital media and design software is essential. A well-stocked learning resource centre should be available with appropriate research materials in the form of books, magazines and internet facilities.

The computer software and hardware will vary depending on the specialism/pathway as well as centre resources but are likely to include:

- computers with appropriate hardware and software
- digital cameras
- printers
- scanners
- internet access
- digital storage devices.

Employer engagement and vocational contexts

Centres should develop links with practising designers and studios in order to put assignment briefs into context and, if possible, to provide learners with work experience.

Assignments should be vocationally relevant and centres should consider live briefs where possible.

Partnerships with establishments that offer relevant progression routes could be developed and encouraged.

Links with employers are essential to delivery of the programme in terms of work experience and future employment.

Vocational learning support resources include:

● Learning and Skills Network – www.vocationallearning.org.uk

Business and finance advice:

● local and regional Business Link – www.businesslink.gov.uk

Creative and cultural skills (www.ccskills.org.uk), the sector skills council for arts, crafts and design have launched the web portal Creative Choices (www.creative-choices.co.uk). This portal has a range of information about careers in the arts, crafts and design sector, including job descriptions.

Skillset, the sector skills council for creative media (www.skillset.org), provide details (www.skillset.org/careers) about careers advice and industry information, plus a regularly updated news and events page.

Skillfast-UK, the sector skills council for fashion and textiles (www.skillfast-uk.org), provide details (www.skillfast-uk.org/justthejob) about careers advice and industry information, plus regularly updated news and events pages.

Indicative reading for learners

Textbooks

Berger J – *100 Habits of Successful Graphics Designers: Insider Secret from Top Designers on Working Smart and Staying Creative* (Rockport Publishers Inc, 2005) ISBN 978-1592531882

Bergstrom B – *Essentials of Visual Communication* (Laurence King Publishing, 2008)
ISBN 978-1-85669-577-0

Blais J and Ippoloto J – *At the Edge of Art* (Thames & Hudson, 2006) ISBN 978-0500238226

Cates S, Abrams S and Moughamian D – *Photoshop CS4 Bible* (John Wiley and Sons, 2009)
ISBN 978-0470345177

Dabner D – *Graphic Design School* (Thames and Hudson, 2004) ISBN 978-0500285268

Eskilson S – *Graphic Design: A New History* (Laurence King Publishing, 2007) ISBN 978-1856695114

Fletcher A – *The Art of Looking Sideways* (Phaidon Press, 2001) ISBN 978-0714834498

Lupton E – *DIY: Design it Yourself* (Princton Architectual Press, 2006) ISBN 978-1568985527

Pipes A – *Foundations of Art & Design: Second Edition* (Laurence King Publishing, 2006)
ISBN 978-1856695787

Zeegan L – *Digital Illustration: A Masterclass in Digital Image-Making* (Rotovision, 2007)
ISBN 978-2880467975

Journals

Baseline

Computer Arts

Computer Arts Projects

Creative Review

Websites

www.adobe.com	digital media software
www.computerarts.co.uk	tutorials and examples of digital media
www.digitmag.co.uk	links and news on digital media
www.gimp.org	GNU Image Manipulation Program software
www.good-tutorials.com	tutorials on digital media
www.nsead.org/ict/index.aspx	case studies, examples of practice and links, related to new media and education in art and design
www.reuters.com/article/latestCrisis/idUSL18678707	Reuters news image editing story
www.worth1000.com	competitions in image manipulation in many different categories

Delivery of personal, learning and thinking skills

The table below identifies the opportunities for personal, learning and thinking skills (PLTS) that have been included within the pass assessment criteria of this unit.

Skill	When learners are …
Independent enquirers	discussing assignment requirements researching and annotating evaluating work
Creative thinkers	idea generation and development development of final outcomes evaluating work
Reflective learners	evaluating own work and that of others presenting ideas and final solutions
Team workers	generating ideas developing software and hardware skills
Self-managers	researching and annotating developing ideas and final solutions managing time and workload
Effective participators	idea generating peer assessing discussing work.

Although PLTS are identified within this unit as an inherent part of the assessment criteria, there are further opportunities to develop a range of PLTS through various approaches to teaching and learning.

Skill	When learners are …
Reflective learners	giving feedback on assessment decisions
Team workers	discussing ideas
Self-managers	organising time and managing resources effectively
Effective participators	participating in critiquing own work and that of others.

Functional Skills – Level 2

Skill	When learners are …
ICT – Use ICT systems	
Select, interact with and use ICT systems independently for a complex task to meet a variety of needs	researching examples of others work developing and producing final outcomes
Use ICT to effectively plan work and evaluate the effectiveness of the ICT system they have used	planning assignments
Manage information storage to enable efficient retrieval	backing up digital files effectively
Follow and understand the need for safety and security practices	adhering to health and safety practices
Troubleshoot	working through any issues arising using the correct procedures
ICT – Find and select information	
Select and use a variety of sources of information independently for a complex task	finding related examples to support development of ideas
Access, search for, select and use ICT-based information and evaluate its fitness for purpose	finding and using relevant information to support the development of ideas and the formulation of opinions
ICT – Develop, present and communicate information	
Enter, develop and format information independently to suit its meaning and purpose including: • text and tables • images • numbers • records	developing of ideas and production of final piece(s)
Bring together information to suit content and purpose	researching, idea development and producing final outcomes
Present information in ways that are fit for purpose and audience	producing final outcomes
Evaluate the selection and use of ICT tools and facilities used to present information	evaluating use of image manipulation software and techniques
Select and use ICT to communicate and exchange information safely, responsibly and effectively including storage of messages and contact lists	

Skill	When learners are ...
Mathematics	
Understand routine and non-routine problems in a wide range of familiar and unfamiliar contexts and situations	scale paper sizes and formats font sizes file management – correct use of file formats to manage memory issues
Identify the situation or problem and the mathematical methods needed to tackle it	scale paper sizes and formats font sizes
Select and apply a range of skills to find solutions	using effective file management techniques
Use appropriate checking procedures and evaluate their effectiveness at each stage	
Interpret and communicate solutions to practical problems in familiar and unfamiliar routine contexts and situations	
Draw conclusions and provide mathematical justifications	
English	
Speaking and listening – make a range of contributions to discussions and make effective presentations in a wide range of contexts	presenting of ideas, development, evaluation and analysis
Reading – compare, select, read and understand texts and use them to gather information, ideas, arguments and opinions	assignment opportunities, contexts and constraints
Writing – write documents, including extended writing pieces, communicating information, ideas and opinions, effectively and persuasively	annotating of ideas writing up evaluation.