Unit 107: Visual Imagery for Production

Unit code: A/600/0009

QCF Level 3:   BTEC National

Credit value: 10

Guided learning hours: 60

● Aim and purpose

This unit enables learners to gain knowledge of visual imagery and develop the skills and practices required to use visual imagery to support a production.
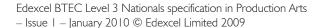
● Unit introduction

Modern technology has made new and exciting approaches to the 'look' of a production commonplace. Shows such as 'We Will Rock You', 'Return to the Forbidden Planet' and 'Starlight Express' have introduced technology in a way that has not been seen before – projection screens fed with pre-recorded and even live images that are an essential ingredient of the production. These elements have enabled 'virtual' scenery and special effects to be an accepted technique used by scenographers and set designers. Initially, this technology was very expensive and impossible to deliver in an educational environment, but now reductions in cost and increases in availability of equipment make study of this new production area viable.

Learners can develop skills in the capture and manipulation of images to enhance their productions and simulate, on a smaller scale, the techniques seen on the professional stage. These skills and techniques have traditionally been developed 'on the job' and this unit allows learners to experiment, design and use these techniques to support a wide range of theatrical genres from period drama through to science fiction.

Learners will use video equipment such as cameras, editors, projectors, computers, screens and all the associated processes necessary to create visual images that can be used in a production or performance context. Primarily a visual medium, there is scope for integration with lighting and sound units to expand the scope to encompass 'son et lumière' or theme park style events.

Modern theatrical and television production uses computer-based software systems to provide visual input to a production. These range from fast-moving video segments to graphics displayed on LED lighting equipment. Video artistes are becoming common, and these specialists create new types of images used on their own, or as support for a production. Music events now incorporate moving and still images as part of the design of the show. Image magnification is now an important element for many productions when it is necessary to enable an audience to see fine detail that would not be evident when watching from the traditional 'wide angle'.

Learning outcomes

On completion of this unit a learner should:

1   Be able to produce visual imagery for performance

2   Be able to incorporate visual imagery into productions.

Unit content

1 Be able to produce visual imagery for performance

Source material: video and still camera systems; graphics

Planning: concepts; budgets; technical requirements; venues; sourcing

Editing: recording; editing; compiling; mixing; operating

Imagine manipulation: effects; compositing; rendering; exporting; keying

2 Be able to incorporate visual imagery into productions

Equipment: projection equipment; front/rear projection screens; LED systems; multi-screens; equipment suspension systems; cabling and control systems

Integration: collaboration with set and lighting designers; installation and testing; control systems

Software systems: basic presentation systems; dedicated visual display computer software; media servers and systems

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 design and plan a simple media product for a performance [CT, SM, RL]	**M1** design and plan a media product for performance using advanced techniques	**D1** design and plan a media product for performance using a wide range of advanced techniques
P2 carry out simple editing and image manipulation of recorded media [CT, SM]	**M2** carry out editing and image manipulation of recorded media using advanced techniques	**D2** carry out editing and image manipulation of recorded media using advanced techniques showing creativity and attention to detail
P3 set up visual display systems [SM, TW, RL]	**M3** set up visual display systems with minimal support and guidance	**D3** set up visual display systems independently
P4 integrate visual images into a production with support and guidance. [EP, SM]	**M4** integrate visual images into a production, managing (with guidance) any issues that arise during the process.	**D4** independently integrate visual images into a production.

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

The components of this unit, although described in a sequential form in this specification, are all activities that can be carried out in discrete, stand alone stages. In some cases, a centre may be able to build up a library of suitable media, that can be used as source or stimulus material, and which can then be assessed later when developed by another learner for a new purpose and graded, based on the treatment it has been subjected to.

It is recognised that delivery of this unit may be more suited to intense periods during the lead up to a production, with essential skills being introduced during the non-production periods. Centres should feel free to use the outline learning plan as a guide to one possible route through the delivery period. As with many production units, timescales are usually set by the performers, with production changing schedules, often at short notice, to match the needs of the show/event.

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
Introduction to unit and structure of the programme – whole group.
Examples of productions with visual imagery.
Watching examples – with discussion.
Introduction to camera systems.
Assignment 1: Planning for a Production – P1, M1, D1
Assignment 1 – Originate/source visual images suitable for editing: • identify and collect equipment required for project • rig/set-up/operate equipment • strike equipment and return to store.
Entire group – watch material shot and/or images collected – evaluate in groups, suggest methods to assess quality, technical issues, formulate plans to improve quality. (Note – if equipment limited, run this session with one group, while another is originating more material.)
Repeat origination activity – opportunity for assessment of P1, M1, D1.
Repeat evaluation activity.
Introduction to graphics activity – logos, effects, animation.
Assignment 2: Graphics – Planning and Producing – P1, M1, D1 • Examine professional graphics (photographs/video of productions). • Produce alternatives that could have been used for these productions. • Set work for assessment based on a chosen theme/production.

Topic and suggested assignments/activities and/assessment
Production 1 – The Tempest activity – opportunity for assessment of P1, M1, D1 • produce ideas for a 'video set' • in groups, convert ideas into functional plans • produce drawings/images/visuals as appropriate • present the design to the other groups.
The Tempest – assessment of designs – grades and comment.
Production 1 – The Tempest – Planning and Production • originate live action camera material • originate graphics and other visual images.
Introduction to editing and effects.
Workshop sessions activity – opportunity for assessment of P2, M2, D2 • video editing • effects and processing
Introduction to display equipment • projectors • interconnection systems • other presentation equipment.
Workshop session – setting up projectors – opportunity for assessment of P3, M3, D3 • mounting • interconnecting and set-up menus • front/rear projection • keystone problem solving • calculations.
Production 1 – The Tempest – Production and Presentation – opportunity for assessment of P2, M2, D2, P3, M3, D3, P4, M4 and D4 • set-up equipment • operate equipment.
Introduction to presentation software systems • simple presentation systems • specialist presentation software • integration with lighting and sound.
Production 2 – 'Son et lumière' event – opportunity to revisit all assessment criteria • planning and history • roles, skills • the event brief • research • 'the plan'.

Topic and suggested assignments/activities and/assessment
Production 2 – Origination • still images • moving images • sounds.
Production 2 – Production • video editing • effects generation • sound editing and integration • lighting links – plans for link with lighting equipment/personnel.
Production 2 – The event • setting up and testing • operating for rehearsal and performance • removing equipment.
Revisiting criteria – additional sessions on areas where roles distribution, or real project conditions prevented learners having access to individual criteria.

Assessment

Learning outcome 1 is concerned with production. Learners are encouraged to produce their own material and also consider sourcing material that can be incorporated into their plans. Many learners are comfortable with using video cameras, or cameras built into mobile telephones and traditional and digital stills cameras. Once they understand the strengths and weaknesses of these media they can 'collect' images for their projects. They will design the complete media product and then incorporate the moving and still images they have produced into it. Editing and perhaps effects treatment may need to be added. The assessment is confined to considering how learners dealt with designing the product – whatever it is and how they edited and manipulated the media to fulfil the design requirements.

Learning outcome 2 deals with the presentation of these media items. In many cases it will be linked to a traditional performance-style event, but could be the performance itself. There are grades available for physical/technical activities such as setting up the equipment, but also for managing the integration of the new visual elements into the event or show. The final element of learning outcome 2 is linked to using presentation software to enhance a production. This could be interpreted as something as straightforward as a PowerPoint presentation that perhaps assists in making a complex subject easier to understand, or a complex fully interactive presentation. The intention, however, is to use modern software based systems to provide exciting and visually stimulating backgrounds or information that really improves the experience for the audience. This kind of production is now very common on television and in the theatre – providing what is often called the 'wow' factor.

To achieve P1, learners must be able to design and plan a media product. This planning is not simply a paperwork exercise, it requires learners to collect material and produce their own. The incorporation of this collected material into the project is the key. They will need to understand the purpose of the project so they can generate or collect appropriate material. Technical skill level is also important. A design that requires advanced image manipulation for success will not be possible if learners are not aware of the more advanced techniques that can be used. It is important to note that criterion 1 does not require learners to produce a finished product, this is graded in criterion 2. A simple and technically unchallenging product may be awarded a P1 grade. A more advanced product that perhaps uses techniques such mixing, blending and effects may meet the criterion for a M1 grade, while a design that uses the techniques for the merit grade, but also adds in animation, slow or fast motion, keying and multiple layers could access the D1 grade. Assessors need to consider the learner's understanding of these types of techniques when considering the work against the criterion descriptors.

Criterion 2 is concerned with learners carrying out editing and image manipulation. Learners who can demonstrate they can carry out the editing and manipulation process have access to P1. The pass criterion requires learners to be able to perform tasks such as transfer of media between equipment, operation of computer based editing/image manipulation systems and the final transfer to the medium used for the production. Learners who can use more advanced techniques, for example, effects and transitions and animation will have access to the M2 grade. Using these features in a creative manner with attention to detail is required to be awarded D2.

The set-up and operation of display systems is assessed for criterion 3. The display systems could be conventional television monitors and projection equipment, but the specification allows use, if desired by centres, of large format modular screens in non-standard shapes. These types of displays frequently use lighting control systems as part of their design. Use of sophisticated designs is not a requirement of the unit, but offers some scope for achieving skills in industry practice. It is appreciated that connection systems for display equipment are often complex, and criterion 3 allows a pass grade to be awarded when learners carry out such processes under direction. Learners who only require minimal support and guidance have access to the M3 grade; independent activity by learners is the requirement for the D3 award in this criterion.

The end process of integrating the visual imagery into the production is assessed for criterion 4. This integration process is often complicated, requiring coordination with the other areas of production; when learners manage these problems they are able to gain access to the M4 grade. A simple integration, perhaps of a single screen into a set may not present sufficient difficulty to allow anything other than a P4 grade to be awarded. Learners who can manage the visual image integration into a production with minimal support and guidance have access to the D4 grade.

It is important to note that the software and hardware used to produce the visual imagery that is used in the performance is often equipped with preset or demonstration features. Assessors need to be certain that the work being assessed has been produced with significant input from the learner. It is not acceptable for learners to use a complex template with effects and then simply insert their own moving or still images. It would be good practice for learners to include their original source material when submitting work for assessment to ensure that their own efforts are rewarded.

Programme of suggested assignments

The table below shows a programme of suggested assignments that cover the pass, merit and distinction criteria in the 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, M1, D1	Assignment 1 Planning for a Production	Learners, in a design role, will be using equipment to originate and source moving and still images.	Assessor observation. Review of recorded material.
P1, M1, D1	Assignment 2 Graphics – Planning and Production	Learners, as a production assistant, will produce graphics for a set theme (or event).	Assessor observation. Learner notes. Completed graphics.
P1, M1, D1	The Tempest	Learners, as designers, are producing ideas for The Tempest – these designs are presented to rest of the learners.	Presentation with observation. Learner notes. Video evidence of the presentation phase.
P2, M2, D2	Editing and effects Workshop sessions with assessment of process and end product	Learners, as technical assistants, experiment with new techniques and concepts using their own or supplied material.	Assessor observation. Learner notes. Video evidence.
P3, M3, D3	Projection equipment workshop with assessment opportunity	Learners, as technical assistants, will be setting up and operating projection equipment.	Learner notes/records. Assessor observation. Video evidence.
P2, M2, D2, P3, M3, D3, P4, M4, D4	The Tempest – Project commences	Learners, as technical assistants, will use the production, editing and display equipment for a real production.	Assessor observation. Video evidence.
P1, M1, D1, P2, M2, D2, P3, M3, D3, P4, M4, D4	Son et Lumiere event – project commences	Learners, as designers, will be carrying out similar activities to their work on The Tempest, using their previous work as a guide.	Learner notes/records. Assessor observation. Photographs. Video evidence.

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

This unit forms part of the BTEC Performing and Production Arts sector suite. This unit has particular links with the following unit titles in the BTEC Performing and Production Arts suite:

Level 1	Level 2	Level 3
Exploring Production Skills for the Performing Arts	Lighting Operations for Stage Performance	Stage Lighting Operations
	Sound Operations for Stage Performance	Stage Sound Operations
	Set Construction	Scenic Construction for the Stage
		Production Arts Workshop
		Technical Stage Operations
		Performing Arts Event Management
		Technical Stage Operations
		Stage Design for Performance

This unit also has links with the following National Occupational Standards:

Technical Theatre

- CPD1 – Improving your skills
- CPD2a – TP Keeping up to date with technical and production developments in the live arts
- CPD4a – Contributing to technical production work for performance.

Essential resources

This unit requires centres to have access to moderate levels of technical equipment. Due to the assessment requirements of performing arts programmes, centres are likely to have access to video-recording equipment and basic computer presentation equipment such as PCs with common software such as PowerPoint. Current versions of this software are capable of a range of effects and treatments, but there are a number of other software packages available that are designed to be used as a performance tool. Some are based on software that runs on conventional computers, while more sophisticated equipment is supplied as a hardware/software combination. These products are more 'learner friendly' and offer facilities to integrate with lighting and audio equipment which is a major advantage.

Video editing software is available on both MAC and PC platforms in budget through to professional price ranges. The criteria put emphasis on being creative for access to higher grades, but this creativity can be applied using budget software, often of the type supplied with a computer system. Many centres have access to image manipulation software – Photoshop or other similar products. This type of software is required to allow learners to work in a professional manner, so that they may experience the challenges found in the industry, and develop transferable skills. Software that can apply similar processes to moving images is also required, along with the facility to export still and moving images to other media.

Centres are now normally equipped with presentation equipment that uses projection and/or large screen displays and this is ideal for use within this unit. There is mention within the unit of LED matrix display equipment – this is now in use professionally, but is rarely seen for economic reasons in centres. The unit offer scope for centres to hire in such equipment for prestige productions if they wish, but its use is not a requirement.

Employer engagement and vocational contexts

Centres should develop links with local theatres and other entertainment venues. Centres with learners aged under 16 need to be aware that placements or real work experience are rarely available in theatres because of legal restrictions.

Although not exhaustive, the software listed here has been shown to be useful in carrying out the processes detail in this unit:

- Adobe Photoshop, After Effects, Premiere
- Apple iMovie
- Arkaos
- Avid Media Composer
- Final Cut Pro
- Green Hippo
- Screen Monkey
- Sony Vegas.

Indicative reading for learners

Textbooks

Allen D and Connor B – *Encyclopedia of Visual Effects: The Ultimate Guide to Creating Effects in Shake, Motion and Adobe After Effects (Apple Pro Training)* (Peachpit Press, 2006) ISBN 9780321303349

Wright S – *Compositing Visual Effects: Essentials for the Aspiring Artist* (Focal Press, 2008) ISBN 9780240809632

In addition, a large number of printed guides and tutorials are available – readers should be aware these are closely linked to individual versions of the popular brands of software and may have limited lifespan as software evolves during the lifetime of this specification.

Websites

www.adobe.com	Adobe
www.apple.com/finalcutstudio/finalcutpro	Final Cut Studio
www.avid.com	Avid
www.creativecow.com	Creative Cow
finalcutpro.digitalmedianet.com	DMN Final Cut Pro Channel
premiere.digitalmedianet.com	DMN Premiere Pro Channel
vegas.digitalmedianet.com	DMN Vegas Application Channel

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 …
Creative thinkers	designing and planning media products and carrying out editing and image manipulation
Team workers	setting up display systems and other larger scale activities involving multiple participants
Self-managers	carrying out the entire range of processes and activities contained within this unit.

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 …
Independent enquirers	involved in on or off-line tutorials to gain specific new skills necessary to a particular project or individual technique required
Team workers	working in a group assisting others or perhaps carrying out image processing under direction from another learner.

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	choosing appropriate editing systems
ICT – Find and select information	
Select and use a variety of sources of information independently for a complex task	researching techniques to achieve specific goals
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	choosing images to use
Bring together information to suit content and purpose	editing and manipulating images
Present information in ways that are fit for purpose and audience	converting and exporting video and audio files
Evaluate the selection and use of ICT tools and facilities used to present information	evaluating the tools used and their effectiveness
Mathematics	
Understand routine and non-routine problems in a wide range of familiar and unfamiliar contexts and situations	calculating processing time and file sizes using estimation and calculation to decide on image formats and compression systems linking visual systems to DMX equipment using projectors and screens
Identify the situation or problem and the mathematical methods needed to tackle it	
Select and apply a range of skills to find solutions	
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	

Skill	When learners are ...
English	
Speaking and listening – make a range of contributions to discussions and make effective presentations in a wide range of contexts	doing planning and preparation work attending production meetings
Reading – compare, select, read and understand texts and use them to gather information, ideas, arguments and opinions	responding to complex technical manuals using video or printed tutorial guides
Writing – write documents, including extended writing pieces, communicating information, ideas and opinions, effectively and persuasively	producing text/graphics for video producing production documentation for others to use.