Unit 67: Stage Lighting Design

Unit code: R/502/5679
QCF Level 3: BTEC National
Credit value: 10
Guided learning hours: 60

Aim and purpose

This aim of this unit is to enable learners to develop lighting design techniques for a variety of genres of the performing arts. Learners will research styles and create their own scale lighting plans, using 2D and 3D methods, creating both manual and CAD drawings.

Unit introduction

The stage lighting designer usually works in cooperation with other members of the creative production team: the director or choreographer, the set designer and the costume designer. The careful design of light can imbue a production with a quality that brings the various visual elements together, highlighting elements that contribute meaning to an audience.

The lighting designer produces the concept for the lighting, decides how the production will look from a lighting perspective and produces a technical specification; the lighting crew will install equipment in accordance with it. They then colour and focus the rig to the designer's specification.

It is common for the designer to then move on to further projects once the show is up and running. In amateur and educational productions, the role of designer and crew is often combined.

In this unit learners are introduced to the different design approaches necessary for successful lighting in a number of genres. The unit also gives learners the skills to document a lighting design fully. Learners will develop their understanding of contemporary lighting design and learn how to fulfil the director's requirements regarding atmosphere, visibility, and controlling the focus of the audience's attention through the medium of lighting. The unit is also suitable for study as a stand-alone unit for those learners already familiar with the basic concepts and products available to the designer.

Learning outcomes

On completion of this unit a learner should:

1 Know lighting design practices

2 Be able to apply design skills in a variety of 2D and 3D forms

3 Be able to undertake the role of lighting designer during the preparatory and rehearsal phases

4 Be able to manage the plotting session, technical and dress rehearsals.

Unit content

1 Know lighting design practices

Purposes/aims of lighting: atmosphere; illumination; dimension; selectivity

Design approaches for: eg musicals, small- and large-scale plays, touring productions, opera, dance, classical music, rock/pop, special events, conferences, exhibitions

Tools: colour; beam; angle; direction; intensity

Design techniques: eg technology, common practice, cross-fades, snaps

Lighting techniques: eg top light, backlight, side light, uplight, low level, shin busters, footlight, key light, fill light, specials

Effects: eg smoke/haze, moving light, washes, specials, gobo/break-ups

2 Be able to apply design skills in a variety of 2D and 3D forms

Drawing: scale; medium; conventions; manual drawing systems; CAD

2D: eg sketches, diagrams, storyboards, video cameras, photography

3D: eg model boxes, computer visualisation software

3 Be able to undertake the role of lighting designer during the preparatory and rehearsal phases

Pre-production: development of ideas; text, movement and musical analysis; scene-specific design; key and fill; design themes; spatial awareness and definition

Performance: conventions; semiotics; aesthetic awareness; interactive lighting

Relationships: director; designers; crew; performer; management

4 Be able to manage the plotting session, technical and dress rehearsals

Design, rehearsal and production phase: design; planning; scene building; plotting; cues; responding to the needs of the production and performance; troubleshooting; maintaining standards

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	outline alternative approaches and techniques used in lighting design [IE]	**M1**	describe the main alternative approaches and techniques used in lighting design	**D1**	explain the alternative approaches and a wide range of techniques used in lighting design
P2	produce accurate manual drawings using established conventions [CT]	**M2**	produce accurate manual and CAD drawings using established conventions	**D2**	produce an accurate and comprehensive manual, CAD drawings and visualisations using established conventions
P3	produce a complete design that is competent and functional, using an adequate level of technical skill, with some supervision [CT]	**M3**	produce a complete design using a good level of technical skill, taking account of the practical and aesthetic demands of the production with minimal supervision	**D3**	produce a complete design using a comprehensive range of technical skills, and take full account of the practical and aesthetic demands of the production
P4	fulfil the role of the lighting designer within a production team [CT, TW, EP]	**M4**	fulfil the role of the lighting designer with a production team, making a valid contribution to the performance	**D4**	fulfil the role of the lighting designer within a production team, working effectively and collaboratively
P5	manage the plotting session, technical and dress rehearsals with some guidance. [EP]	**M5**	manage the plotting session, technical and dress rehearsals without guidance satisfying the needs of the production.	**D5**	manage the plotting session, technical and dress rehearsals without guidance in an effective and industry typical manner.

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

Learners will need to study the work of lighting designers working within the different genres of production. In particular, still and moving images of their work are critical for study. The internet is a useful source for images but study of suitable texts will reveal more information on the actual processes used.

Workshop sessions are important for the delivery of the design skills elements of the unit. Learners will require opportunities to practise their design skills. The complexity of the designs produced by learners during the delivery period of this unit should range from basic to complex. Each learner must have the opportunity to bring at least one design forward to the production phase at some point during the delivery period of the unit.

Learners will need access to ICT to create CAD drawings and 3D visualisations. Learners also need the opportunity to access manual drawing rooms/flat surfaces to carry out manual scale drawing activities.

Work within the centres may also be enhanced by learner activity in external venues and if possible, this should be encouraged. It is essential that learners work on design ideas in the context of a creative production team, allowing them to negotiate with a director/choreographer (if relevant) and other design contributors.

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 the unit and structure of the programme of learning.
Introduction to stage lighting design – tutor • conventions • what needs to be on a plan • colour, beam, intensity, angle, direction • types of performance and different lighting techniques • atmosphere, illumination, selectivity, dimension.
Assignment 1: Research Techniques Used in Stage Lighting Design – P1, M1, D1 • Research techniques used in plays, musicals, variety. • Discuss use of colour and effects. • Present annotated examples/images of practical designs.
Lighting design: tutor • manual drawings • CAD drawings • 2D and 3D • scale.

Topic and suggested assignments/activities and/assessment
Assignment 2: Produce Manual and CAD Lighting Design Drawings and Visualisations for a Specific Project – P2, M2, D2, P3, M3, D3 Learners produce: • a manual LX design • a CAD LX design • visualisations,
Assignment 3: Create a Complete Lighting Design for a Performance – P3, M3, D3 Learners produce: • initial ideas – blob plan • manual/CAD drawings • accurate designs • colour call, patch list and other associated paperwork.
Assignment 4: Continue the Role of Lighting Designer through the Rehearsal and Production Phases – P4, M4, D4, P5, M5, D5 Learners: • communicate the design to electrics team • focus a lighting rig • plot the show • integrate design into the overall artistic theme of the production • work with the production team.
Review unit and assignments. Feedback from assignment.

Assessment

Assessment for this unit will be centred on the written, drawn and practical elements of the unit. If computer software is used for the production of evidence it is essential that the assessor is familiar with this software so that credit for learners' contributions can be correctly applied. Some software allows high-quality visualisations from minimal learner input, and this must be incorporated into the assessment process employed by the centre. Where sophisticated software is not available, learners must not be disadvantaged.

Typical learner-produced evidence suitable for assessment may include drawings, charts, schedules, still or moving images, spreadsheets, databases, budget documentation, timesheets, production schedules, hire lists or other similar material.

Observation assessment systems may be useful to assess the practical elements of this unit, but must be thorough and carried out over an extended period. As an example, the assessor could be present at a plotting and focusing session. Assessors should be aware that evidence collection during the production phase is vital. Post-production evidence is unlikely to allow access to the higher grades.

There are four elements to the assessment of work for this unit:

- producing an indexed reference portfolio of design research
- demonstration of using a range of colour, beam, intensity and effects in a performance situation
- production of 2D and 3D designs and associated paperwork, blob plans, sketches
- plot and focus notes.

Each element can be documented in a number of ways to produce sufficient and reliable evidence for assessment purposes. Evidence of background research material should include different designers and genres and look at industry conventions.

Learners should maintain a working log/diary for the practical elements of this unit and should also have supporting evidence in the form of photographic, video, observation records and witness testimony. A permanent record of learners' achievements can best be made with photographic or video evidence of the effects or processes achieved in practical work. Written evidence from the learners would also be valid but it would be difficult to detail the actual processes they used adequately.

Witness statements from suitably qualified individuals in a professional environment would also be acceptable subject to internal and external verification processes, and witness testimony or assessment should be undertaken and a record placed as evidence in learners' portfolios.

Centres may use this unit as a method of providing lighting for their productions and must ensure that sufficient assessment opportunities for learners will be available.

Learning outcome 1 requires learners to understand lighting design practices, showing conventions for types of lighting design.

Differentiation between pass, merit and distinction will be apparent through the depth of research and the factors taken into account when presenting their ideas.

At pass level, learners will identify alternative approaches to lighting design, this should include different types of events and the similarities and differences between different genres and look at colour and to set mood and atmosphere. They should show a basic understanding of the similarities and differences of the design for each type of performance. Research evidence will be presented showing examples of each type. This could be in the form of a report, either written, spoken, or using ICT and should contain a portfolio of research.

At merit level, learners will be describe alternative approaches taken to designing lighting, including colour of at least three types of production covering plays, musicals and dance events. Using the research undertaken and their own knowledge, select possible colours and effects for each type of performance, justifying the choices and showing an idea of where each colour would be used.

At distinction level, learners will describe in detail a range of designs, looking at different techniques used to create effects, to set mood and atmosphere and show clear understanding of key light, backlight, top, front and side light and where and when they could be used, and potential colours for a range of effects, and lantern positions. Colour and effects should be justified as to how and where it should be used.

Learning outcome 2 requires learners to demonstrate 2D and 3D design skills, these can be assessed using the drawings provided for the lighting design, both manually drawn and by CAD. This will require examination of the drawing, with some basic questioning or evaluation as to choice of colour, and positioning to ensure knowledge.

At pass level, learners will be able to draw a manual scale lighting plan, using established conventions for a basic lighting rig.

At merit level, learners will be able to provide a manual and a CAD drawing to established conventions.

At distinction level, learners will be able to produce a manual and a CAD drawing, also to produce some visualization. This could be through model boxes or using 3D visualisation software.

Learning outcome 3 requires learners undertake the role of a lighting designer. They will have to produce an accurate design and associated paperwork. This may include elevations of the venue, colour call, lantern list, etc.

At pass level, learners will provide a design to an adequate standard which matches most of the technical requirements of the production. They will show how the design complements the other aspects of the production, and will show teamwork skills within their production team.

At merit level, learners will produce a design to a good standard, with only minimal supervision, ensuring it meets the technical demands of the production. This could include specials, back light, lighting positions, and knowledge of how the colours chosen and lighting positions complement the overall design and direction of the performance. At merit level there will be a clear relationship between the designer, director and lighting designer and teamwork and compromises will be shown.

At distinction level, learners will be able to produce a comprehensive design, with no supervision, and demonstrate how the design complements the production, direction and set design. They will have a clear understanding of all the elements of their design and a clear vision of how it will work together with the other production elements to complement the overall production concept.

Learning outcome 4 requires learners to manage the rehearsal and production phase.

This should be implemented during one of the events undertaken, and will require planning and then execution of the requirement. This should be evidenced through witness testimony, video, photo and peer testimony, and an overall view of the finished production. An evaluation should indicate how well the actual design met the brief and the original hopes and requirements. This must be undertaken in real life on a real production.

For P4/5, learners will be able to manage the focus, plot, rehearsal and dress rehearsal stages as a lighting designer with some guidance. They will demonstrate some delegation to their team and show some artistic input to the process.

For M4/5, learners will be able manage the rehearsal process without guidance, delegating minor jobs to their team and having a clear artistic vision as to the look of the production.

For D4/5, learners should be able to run the rehearsal phase as an industry lighting designer, having a clear idea of what they want to achieve and making constant changes as required to ensure the look is what they had envisaged.

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	1: Research Techniques Used in Stage Lighting Design	Learners, as lighting designer, research at least three genres, in terms of design differences and explore the use of colour and effects.	Research evidence. Presentation/report. Examples of colours used.
P3, M3, D3, P2, M2, D2	2: Produce Manual and CAD Drawings and Visualisations for a Specific Project	Learners, as lighting designer, produce a manual drawing, and a CAD drawing and visualisation for a set project.	Manual scale drawing. Cad drawing. Visualisation. Colour call.
P3, M3, D3	3: Carry out a Complete Lighting Design for Performance	Learners are given the role of lighting designer on an actual production and carry out all associated tasks.	Manual drawing. Blob plan. Cad drawing. Notes/cue synopsis. Colour call. Colour evaluation.
P4, M4, D4, P5, M5, D5	4: Carry out the Role of Lighting Designer	Learners carry out the role of lighting designer, working with production team, director, designer, electrics team.	Focus notes. Plot notes/cue synopsis. Working practices with production team. Overall artistic aims achieved. Management of team and rehearsal process observations.

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 Design Skills for the Performing Arts	Lighting Operations for Stage Performance	Stage Lighting Operations
		Automated Stage Lighting

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
- TP2.3 – Developing and refining lighting ideas for performance
- TP3.3b – Planning lighting requirements for a production
- TP5.3 – Sourcing lighting and special effects equipment and consumables
- TP8.2a – Setting up, focusing lighting and checking control systems and accessories
- TP9.2a – Rehearsing and plotting the lighting
- TP9.2b – Co-ordinate the rehearsing and plotting of the lighting
- TP11 – Briefing others about techniques, items or equipment.

Essential resources

This unit requires a basic level of equipment to be available to learners. The following paragraph should be used as a guide to the minimum level of equipment needed to allow learners to achieve a full range of grades.

Centres should have available at least 12 generic luminaires. A mixture of fresnel, profile, PAR and flood types is recommended. Ideally a modern memory control desk and dimmers will be available. Single preset controls are not suitable for this unit. If a centre has more sophisticated lighting available this is an advantage to learners in terms of gaining transferable skills, but advanced equipment is not essential for the delivery or assessment of the unit.

Centres need to have available workshop facilities to permit the production of the assessable components of the unit. These include tools and equipment, computer equipment capable of internet access and software to enable the drafting of plans and drawings in 2D and 3D.

Employer engagement and vocational contexts

Job shadowing or work experience is highly recommended, however current health and safety guidelines and the nomadic nature of lighting design work can make it difficult to find theatre placements for learners. Industry contacts can be invaluable in gaining work experience for learners.

Indicative reading for learners

Textbooks

Coleman P – *Basics: Beginner's Guide to Stage Lighting* (Entertainment Technology Press, 2003) ISBN 9781904031208

Fitt B and Thornley J – *Lighting Technology: A Guide for the Entertainment Industry* (Focal Press, 2001) ISBN 9780240516516

Fraser N – *Lighting and Sound* (Phaidon Press, 1988) ISBN 9780714825144

Keller M – *Light Fantastic: The Art and Design of Stage Lighting* (Prestel Publishing, 2006) ISBN 9783791336855

Moody J – *Concert Lighting: Techniques, Art and Business* (Focal Press, 1998) ISBN 9780240802930

Morgan N – *Stage Lighting for Theatre Designers* (Entertainment Technology Press, 2003) ISBN 9781904031192

Offord J – *Lighting for 'Romeo and Juliet': Patrick Woodroffe at Vienna State Opera* (Entertainment Technology Press, 2002) ISBN 9781904031161

Pilbrow R – *Stage Lighting Design: The Art, The Craft, The Life* (Nick Hern Books, 1997) ISBN 9781854599964

Reid F – *Lighting the Stage: A Lighting Designer's Reflections* (Entertainment Technology Press, 2001) ISBN 9781904031086

Reid F – *The Stage Lighting Handbook* (A&C Black, 2001) ISBN 9780878301478

Schiller B – *The Automated Lighting Programmer's Handbook* (Focal Press, 2004) ISBN 9780240806020

Simpson R – *Lighting Control: Technology and Applications* (Focal Press, 2002) ISBN 9780240515663

Staines J – *Lighting Techniques for Theatre-in-the-Round* (Entertainment Technology Press, 2000) ISBN 9781904031017

Stark H – *Live Sound Reinforcement* (Course Technology, 2004) ISBN 9781592006915

Walters G – *Stage Lighting: Step-by-step* (Northlight Books, 2001) ISBN 9781558704589

Websites

www.abtt.org.uk	Association of British Theatre Technicians
www.ald.org.uk	Association of Lighting Designers

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	researching lighting design practice
Creative thinkers	creating a lighting design and colour choice
Reflective learners	evaluating their own work
Team workers	working as part of a production team
Self-managers	creating a lighting design
Effective participators	working as part of a production team.

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	creating cue synopsis
Manage information storage to enable efficient retrieval	saving work
ICT – Find and select information	
Select and use a variety of sources of information independently for a complex task	researching lighting design genres and conventions
Access, search for, select and use ICT-based information and evaluate its fitness for purpose	researching lighting design genres and conventions
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	creating cue synopsis creating colour call creating equipment lists
Mathematics	
Understand routine and non-routine problems in a wide range of familiar and unfamiliar contexts and situations	working out loading and weight distribution
Identify the situation or problem and the mathematical methods needed to tackle it	suspension of bars
English	
Speaking and listening – make a range of contributions to discussions and make effective presentations in a wide range of contexts	communicating with production team
Reading – compare, select, read and understand texts and use them to gather information, ideas, arguments and opinions	carrying out script breakdown
Writing – write documents, including extended writing pieces, communicating information, ideas and opinions, effectively and persuasively	making notes.