Unit 39: Web Animation for Interactive Media

Unit code: A/502/5661

QCF Level 3: BTEC National

Credit value: 10

Guided learning hours: 60

Aim and purpose

The aim of this unit is to develop learners' practical skills in the creation of interactive animations designed for web delivery. Learners will investigate web animations and explore digital animation methods. They will devise, plan and create an animation using vector-based animation software techniques to produce animated, interactive web content.

Unit introduction

Users of the worldwide web increasingly expect dynamic, visually engaging and media-rich content. This can be created by designers in the form of interactive vector-based animations. Animations of this type are scalable, so they can be resized easily for different screen resolutions from mobile devices to the highest resolution monitors. They are also small in file size, they can stream across the internet even at dial-up modem speeds and all internet users can download a software player that makes viewing their content possible. These characteristics make vector-based animations a popular choice for vibrant web content, and designing such sites is a thriving sector of the interactive media industry.

The unit begins with investigations into web animations, enabling learners to understand the uses of animation on the web. These investigations will cover both visual and technical research. Learners are encouraged to look closely at interactive animations on the web to analyse their design and content. They will also investigate technologies associated with web animation in order to better understand how their work will run on the internet.

Planning a web animation project involves designing, storyboarding and drawing animation content. Learners following this unit will gain experience of planning a web animation project in response to a vocationally relevant client brief. Learners will use vector-based animation software techniques to produce animated interactive content designed for delivery on the internet, and will save and export this animation in a format suitable for the web.

This unit will also develop learners' ability to reflect critically on their own work, as they will need this professional skill in any future career.

Learning outcomes

On completion of this unit a learner should:

1 Understand uses and principles of web animation

2 Be able to devise web animation

3 Be able to create web animation following industry practice.

Unit content

1 Understand uses and principles of web animation

Uses of web animation: banner ads; animated interface elements; linear and interactive animations; promotion; instruction; information; entertainment

History of animation: hand drawn (cel); flick books; animated cartoon; animation process, graphic information file format (gif); dynamic hypertext markup language (dHTML); extensible hypertext markup language (XHTML); Java applets

Animation: optical illusion of motion (persistence of vision); claymation; stop motion; computer generation (frame rate, frames, key frames, onion skinning, tweening)

Digital animation: vector animation; raster (bitmap) animation; compression (file size, download speeds); scalability; file formats, eg .fla, .swf, .gif, .mng, .svg

Web animation software: authoring, eg Flash, Swish, Amara, Director; players, eg Flash Player, Shockwave, Real Player, Quicktime

2 Be able to devise web animation

Stimulus: eg client brief, own brief, from market research

Ideas: brainstorming; mood boards; visualisation, eg sketches, storyboards; visual style; colour palettes; typography; sounds; animations; interactivity

Assets: original graphics; stock image library resources; freehand drawing

Legal and ethical considerations: legal, eg copyright, libel; ethical, eg confidentiality, decency, privacy; representation, eg race, gender, religion, sexuality

Animation specification: purpose (client needs, target audience, content, publishing format); aesthetic quality (visual style, layout)

3 Be able to create web animation following industry practice

Plan: asset management (file storage and retrieval, naming conventions); workflow (scheduling, efficient time management); deadlines (production milestones, deliverables, quality assurance)

Workspace: panels, eg stage, timeline, menu bar, toolbar, library, colour palettes, properties, preferences, help

Basic tools: drawing, eg pencil, line, pen, brush, shapes; free transform, eg rotate, skew, distort, scale, envelope, ruler and guidelines; editing, eg lasso, eraser, undo, copy, paste, duplicate, insert, delete, aligning, grouping, ungrouping

Objects: symbols, eg instances, duplicating symbols, swapping symbols, editing, grouping

Colour tools: eg colour properties, eyedropper, creating custom colours, colour swatches, stroke and fill

Text tools: text, eg editing, moving, rotating, reshaping, scrolling, creating text blocks, converting text to shapes

Manipulating objects: manipulating vector shapes; single layer vector shape interaction; transforming and grouping vector shapes

Animation: frame label; frame rate; timeline (playhead, layers, frames, frame rate, keyframes, onion skinning, markers); frame manipulation, eg copying, deleting, reversal; testing movies; frame by frame animation; tweening (shape, motion)

Assets: importing, eg raster images, vector images, sound files, video files, movie clips; resizing; bitmap to vector conversion; asset libraries

Advanced tools: scenes; guide layers; masking, eg mask layers, animated masks; timeline effects, eg blur, drop shadow, expand, explode, transform, transition; nesting movie clips

Interactivity: scripting; behaviours; actions; triggers; buttons; rollovers; playback control; preloaders

Saving and exporting for the web: saving a movie; publishing a movie; optimising; file formats; reasons for formats

Industry practice: reflect on finished product (compared with original intentions, fitness for purpose, technical qualities, aesthetic qualities); production skills (ideas generation, game design documentation, workflow and time management, technical competence, teamwork)

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 describe uses and principles of web animation with some appropriate use of subject terminology	**M1** explain uses and principles of web animation with reference to detailed illustrative examples and with generally correct use of subject terminology	**D1** critically analyse uses and principles of web animation with supporting arguments and elucidated examples, and consistently using subject terminology correctly
P2 generate outline ideas for web animation working within appropriate conventions and with some assistance [CT; SM]	**M2** generate detailed ideas for web animation showing some imagination and with only occasional assistance	**D2** generate thoroughly thought-through ideas for web animation showing creativity and flair and working independently to professional expectations
P3 create web animation following industry practice, working within appropriate conventions and with some assistance. [SM; RL]	**M3** create web animation to a good technical standard following industry practice, showing some imagination and with only occasional assistance.	**D3** create web animation to a technical quality that reflects near-professional standards following industry practice, showing creativity and flair and working independently to professional expectations.

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

This unit is intended to develop an understanding of the uses of animation in web pages. It encourages development of skills in the practical application of specialist software to build animations for the web. Learners must be made aware of the power of vector-based animation and its increasing use by animators in all areas of modern media. Interesting examples of professional work should be viewed and discussions should focus on the purpose and form of the animations. Learners should be encouraged to investigate the relevant technologies such as authoring and player software, file formats, streaming and compression.

An important foundation to any web animation project is ideas generation and planning, so time spent on this away from the computer will pay dividends. Learners must be encouraged to think about how ideas are generated and to apply techniques such as brainstorming and mood boards. Animations should be clearly devised before production, including storyboards, and any interactivity should be mapped in advance in the form of a flow diagram.

Workshops and demonstrations are recommended when teaching software applications. Learners should then be encouraged to apply these software techniques to their own assignment work. Tutors must encourage learners to follow professional practices such as monitoring and reviewing their work during production, creating a quality control process which will enable them to improve technical and creative decisions. Projects can then culminate in learners reflecting upon their work, enabling them to assess their successes in both the production processes and the qualities of their finished products.

At this final stage, learners should be encouraged to consider fitness for purpose and appropriateness to the medium, particularly in relation to when animation is not appropriate for use on the web (for example, whether or not there is value in having a 'pre-home-page' landing animation with 'skip intro' link) or when animation can reduce the functionality of the page through the use of distracting animated graphics or animated interfaces that inhibit task fulfilment.

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 of planning the teaching and assessment of this unit.

Topics and suggested assignments and activities
Introduction to unit and structure of unit assessment.
Introduction to web animation. Learners: • receive lecture and demonstration of web animation in a range of products • receive lecture and conduct guided investigation and research into history of animation, creating an illustrated explanatory timeline • receive lecture on underlying principles covering persistence of vision and computer techniques • receive lecture on animation formats and conduct an investigation into technical demands and typical uses • conduct guided group investigation and research into authoring and player software, noting features, differences and potential uses.

Topics and suggested assignments and activities
Assignment 1 – Web Animation: What You Need to Know Exercise on authoring a discussion of web animation.
Introduction to and review of ideas generation and recording.
Assignment 2 – Animation for the College Website **Part 1** Learners generate ideas for web animations for the college website in response to a competition brief set by the college management. Learners will: • consider and interpret the brief • generate and record ideas • select one idea for development • find suitable source images for chosen idea and document their locations • carry out pre-production planning • consider and document the legal and ethical implications of proposed work • compile a comprehensive development log evidencing their creative work.
Sessions on development of practical web animation skills, with brief introductory lectures, covering: • workspace and basic tools • advanced tools and objects • animation methods within the software • interactivity methods within the software • publishing.
Assignment 2 **Part 2** Learners create a web animation following an idea developed in Part 1 of this assignment. Learners will: • undertake production of their planned idea • present work including review of own web animation work.
Unit learning and assessment review.

Assessment

Evidence for assessment

Evidence for the achievement of learning outcome 1 could be in the form of a presentation, a written report, notes on findings or examples of web animation. The investigations should cover both design and technology issues. Notes from lectures, research from the internet, books and periodicals can all contribute to the evidence. Presentations must be recorded for the purposes of internal and external verification.

Evidence for the achievement of learning outcome 2 could be notes on the creative process (including storyboards and sketches) and the planning process, including schedules and minutes of meetings.

Evidence for the achievement of learning outcome 3 should ideally be generated in response to a given brief. Evidence could be made up of individual notes accompanied by digital documents showing work in progress, finished animation work, and tutor observation of software use and working practices.

Learners could test their work for content and concepts on client, peers and target audience, and test for technical functionality on the relevant platforms. Self-evaluation, in the form of notes or reports in paper or digital form, a formally written evaluation, or a presentation, should cover both the success of the production process and the qualities of the finished animation. Oral presentations should be recorded for verification purposes.

For some elements of this unit, and for some learners, a formal viva voce assessment might be appropriate. When more than one learner in a cohort is assessed in this way, care must be taken to ensure that all learners are asked equivalent questions, and that all are given equal opportunities to expand or clarify their answers. Interviewers must also ensure that questions are not phrased in such a way as to provide or suggest an answer. Formal vivas should be recorded for the purposes of internal and external verification and at least 50 per cent of such assessments must be internally verified.

Application of grading criteria

When applying the grading criteria tutors should follow the advice given below. Please note that any examples of evidence given here are indicative only. This advice is not inclusive and the examples need not be included in a learner's work in order for that learner to achieve the exemplified grade.

Pass

To achieve a pass grade, learners must achieve all the criteria at pass level. For each of the criteria learners must present evidence that addresses each italicised sub-heading of the content for the learning outcome.

P1: learners will describe correctly, and with substantial but not necessarily complete coverage, the key characteristics of web animation technology and usage. They will be able to distinguish correctly between, for example, banner ads, animated interface elements and e-learning content. They will accurately identify technical issues such as compression and file formats. Evidence will show a basic understanding of technical terminology but learners will generally be unsure about this vocabulary and will make fairly frequent mistakes when they do use it.

P2: learners will be able to generate and plan a web animation project which uses some of the key characteristics of web animation in simple and conventional ways. There will be limited evidence of the development process, such as basic visualisations.

P3: learners will have achieved a finished web animation working with basic web animation software techniques, but the outcomes will not be entirely as they intended. The work on the production will have been purposeful and the outcome will have some shape, some sense of design, or the deliberate application of some technique behind it. Following industry practice, learners will be able to consider their own work in such a way that they move beyond merely describing it. They will make evaluative comments upon what they have done but these comments will be assertions that are not supported by evidence or exemplification.

P2 and P3: in terms of the aesthetic or imaginative qualities of their work, learners will not move beyond the conventional, but the conventions applied will be appropriate to the form or genre within which they are working. When engaged in practical activities, learners will need frequent assistance and support, though they will take note of and make use of this help when it is given. If they are in frequent need of such help but fail to make positive use of it, they should not be considered for a pass grade for this unit.

Merit

To achieve a merit grade, learners must achieve all the pass and all the merit grade criteria. For each of the criteria learners must present evidence that addresses each italicised sub-heading of the content for the learning outcome.

M1: learners will explain the key characteristics of web animation technology through detailed illustrative, relevant examples which show how particular technologies are used. They will also discuss the purpose of the chosen examples, clearly explaining differences between, for example, banner ads, animated interface elements and e-learning content. However, learners will not elucidate these examples to show fully how they illustrate the point they support. They will be able to accurately discuss technical issues such as compression and file formats using subject terminology for the most part correctly, though they may make mistakes or be unsure about usage at times.

M2: learners will be able to generate and plan a web animation project which combines the key characteristics of web animation in an imaginative way, making use of conventions but not slavishly copying them and reflecting in their ideas an understanding of the form.

M3: learners will have achieved a competent web animation, working with web animation software techniques and showing some confidence in the application of skills. The successes of the outcomes will reflect a facility in web animation production. Work will be approached methodically, processes undertaken with care and, generally speaking, thought will be put into the work. Following industry practice, learners will explain what they have tried to accomplish and how they have worked to try to achieve what they have set out to do. They will explain decisions made and will exemplify these explanations through relevant and detailed reference to their own work, though the examples they give will not be further elucidated.

M2 and M3: learners will still be working within recognisable generic conventions, but there will be some imaginative thought behind the work so that codes and conventions will be employed with some inventiveness. When engaged in practical activities, learners will need occasional support, particularly when dealing with more complex technology or trying to apply more sophisticated techniques.

Distinction

To achieve a distinction grade, learners must achieve all the pass, all the merit and all the distinction grade criteria. For each of the criteria learners must present evidence that addresses each italicised sub-heading of the content for the learning outcome.

D1: learners will be able to fully explain the characteristics of web animation technologies. They will be able to fully explain, for example, the differences between banner ads, animated interface elements and e-learning content, and technical issues such as compression and file formats, using technical vocabulary correctly and confidently at all times. This fuller and more extensive explanation and provision of argument to support points made, and the higher quality expression, will discriminate between this grade and the merit. Learners will analyse usages of this technology through examples which illustrate clearly the breadth of applications of web animation. They will critically compare, assess and discriminate between the given examples of usage and justify points made using supporting arguments or evidence. They will draw out of each example precisely what it is about it that exemplifies the point it illustrates.

D2 and D3: learners will generate, plan and produce a web animation project which combines the key characteristics of web animation, not just in an imaginative way but with ingenuity and even elegance, codes and conventions being used with occasionally surprising results. Learners will achieve a high quality web animation working with complex web animation software techniques, showing technical excellence in relation to skills. That they should reach 'near-professional standards' does not mean that learners have to achieve actual professional standards. 'Near' means that technical and production skills are beginning to approach the professional standard – they bear comparison with it. Learners will work autonomously and effectively, being able to work on their own initiative with full commitment. They will work positively and cooperatively with others and meet deadlines. In other words, they will have the kind of self-management skills that would be expected of them in a professional context. Following industry practice, learners will make an accurate and critically objective assessment of their own achievement with detailed reference to elucidated examples taken from that work. They will make critical comparisons of their own work with current or past practice in a relevant area (that is, the same genre or format as they have worked in).

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, M1, D1	Assignment 1 – Web Animation: What You Need to Know	Contribution to online media careers ezine – article on principles and uses of web animation.	All preparatory notes. Article as word-processed or electronic document.
P2, M2, D2	Assignment 2 – Animation for the College Website, part 1	Brief from the college webmaster to devise web animation to enhance the college website.	Project portfolio – part 1 containing: • all ideas notes, sketches and drafts • planning documents • source image audit sheet • legal and ethical implications • project proposal.
P3, M3, D3	Assignment 2, part 2	As above.	Project portfolio – part 2 containing: • final web animation • all production documentation • creative development log • personal reflective commentary.

Essential resources

For this unit centres will need appropriate hardware and software of industry standard. Learners will need access to relevant software manufacturers' manuals, textbooks, the internet and a range of examples of current web animation.

Employer engagement and vocational contexts

Centres should develop links with local web animation studios which could be approached to provide visiting speakers, study visits or samples of typical products.

Skillset, the Sector Skills Council for the creative media sector, has a substantial section of its website dedicated to careers, including job descriptions – www.skillset.org/careers.

Further general information on work-related learning can be found at the following websites:

- www.aimhighersw.ac.uk/wbl.htm – work-based learning guidance
- www.businesslink.gov.uk – local, regional business links
- www.nebpn.org – National Education and Business Partnership Network
- www.vocationallearning.org.uk – Learning and Skills Network
- www.warwick.ac.uk/wie/cei – Centre for Education and Industry, University of Warwick – work experience and workplace learning frameworks.

Indicative reading for learners

Textbooks

Baylis P, Freedman A, Procter N et al – *BTEC Level 3 National Creative Media Production, Student Book* (Pearson, 2010) ISBN 978-1846906725

Baylis P, Freedman A, Procter N et al – *BTEC Level 3 National Creative Media Production, Teaching Resource Pack* (Pearson, 2010) ISBN 978-1846907371

Adobe Creative Team – *Adobe Flash CS4 Professional Classroom in a Book* (Adobe, 2008) ISBN 978-0321573827

Corsaro S and Parrott CJ – *Hollywood 2D Digital Animation* (Thompson Course Technology, 2004) ISBN 978-1592001705

Georgenes C – *How to Cheat in Adobe Flash CS: The Art of Design and Animation* (Focal Press, 2007) ISBN 978-0240520582

Green T and Chilcott J – *Macromedia Flash 8 Professional: Training from the Source* (Macromedia, 2005) ISBN 978-0321384034

Hart J – *Storyboarding for Film, TV and Animation* (Focal Press, 1999) ISBN 978-0240803296

Hoekman R – *Flash Out of the Box* (O'Reilly, 2004) ISBN 978-0596006914

Kerman P – *Sams Teach Yourself Macromedia Flash MX2004 in 24 Hours* (Sams, 2003) ISBN 978-0672325946

Ulrich K – *Flash CS3 Professional for Windows and Macintosh: Visual QuickStart Guide* (Peachpit Press, 2007) ISBN 978-0321502919

Ulrich K – *Macromedia Flash 8 for Windows and Macintosh: Visual QuickStart Guide* (Peachpit Press, 2006) ISBN 978-0321349637

Websites

www.adobe.com – software developers' site providing support, knowledge base and forums

www.bestflashanimationsite.com – tutorials, samples of good practice, resources

www.flashkit.com – excellent Flash tutorials and forum

www.flzone.net – tutorials from ActionScript to Web Design

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	generating ideas for their web animation trying out different ways of creating their web animation, following ideas through to complete a functioning animation adapting their ideas as circumstances change
Reflective learners	reviewing and reflecting on their web animation work and acting on the outcomes to modify and improve their work setting goals with success criteria for their production work inviting feedback on their own work and dealing positively with praise, setbacks and criticism evaluating their learning and experience to inform future progress
Self-managers	organising time and resources and prioritising actions whilst generating ideas, sourcing assets and preparing a proposal, and when creating their web animation, whether working on their own or in a group seeking out challenges or new responsibilities and showing flexibility when circumstances change dealing with competing pressures, including personal and work-related demands responding positively to change, seeking advice and support when needed.

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	carrying out research into principles of web animation and its application carrying out research to develop ideas for their own web animation
Team workers	if working in a group to produce web animation, taking responsibility for their own role assimilating information from others and managing their personal contribution in discussions to reach agreements and achieve results.

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	handling systems to create their web animation
Use ICT to effectively plan work and evaluate the effectiveness of the ICT system they have used	planning for the production of a web animation
Manage information storage to enable efficient retrieval	managing assets sourced and created for their web animation
Follow and understand the need for safety and security practices	handling systems to create their web animation
Troubleshoot	handling systems to create their web animation
ICT – Find and select information	
Select and use a variety of sources of information independently for a complex task	sourcing assets for their web animation
Access, search for, select and use ICT-based information and evaluate its fitness for purpose	researching asset types and their limitations for use with web animation tools
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	building and presenting their project portfolio showing their interpretation of the brief and their generation of ideas, documenting the management of their chosen assets, considering legal implications and reviewing their own work
Bring together information to suit content and purpose	
Present information in ways that are fit for purpose and audience	
Evaluate the selection and use of ICT tools and facilities used to present information	preparing a report on web animation tools and how web animation is used
Select and use ICT to communicate and exchange information safely, responsibly and effectively including storage of messages and contact lists	gathering feedback on their web animation work as part of their self-reflective practice

Skill	When learners are ...
Mathematics	
Understand routine and non-routine problems in a wide range of familiar and unfamiliar contexts and situations	using estimation and calculation to plan screen layouts using estimation and calculation to work out timings for editing of sound or video clips for integration into their web animation
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	
English	
Speaking and listening – make a range of contributions to discussions and make effective presentations in a wide range of contexts	taking part in brainstorming sessions to generate ideas as a response to a creative brief
Reading – compare, select, read and understand texts and use them to gather information, ideas, arguments and opinions	studying manufacturers' manuals to research web animation software
Writing – write documents, including extended writing pieces, communicating information, ideas and opinions, effectively and persuasively	creating their project portfolio incorporating ideas, notes, production documentation and reflective comment.