**Digital Design**

**for the Web**

**Course Outline**

**Contents**

**Introduction**

Key features

Rationale

Aims

Progression

Recommended prior knowledge, skills and understanding

**Unit structure**

**Units**

Unit 1: Developing Web Products

Unit 2: Creative Multimedia

Unit 3: Artwork and Imaging

Unit 4: Game Making

Unit 5: Coding for the Web

**Grading information**

Course awards

Grade descriptors

**The purpose of this course outline**

The purpose of this course outline is to set out:

● the course’s objective

● any other course that a learner must have completed before taking the course

● any prior knowledge, skills or understanding that the learner is required to have before taking the course

● units that a learner must have completed before the course will be awarded and any optional routes

● any other requirements that a learner must have satisfied before they will be assessed or before the course will be awarded

● the knowledge, skills and understanding that will be assessed as part of the course (giving a clear indication of their coverage and depth)

● the method of any assessment and any associated requirements relating to it

● the criteria against which the learner’s level of attainment will be measured

(such as assessment criteria)

● any specimen materials

● any specified levels of attainment.

UNIT 1: DEVELOPING WEB PRODUCTS

**Introduction**

**Key features**

This class aims to:

• equip young people with the knowledge, understanding and skills they need to design and make digital products for others to use

• enable young people to use digital tools as a means of expression to inform, persuade and entertain

• foster young people’s creativity and develop their independent learning skills

• challenge young people to reflect on what they produce and strive for improvement

• increase young people’s awareness of their responsibilities in the digital world and their respect of other people’s rights

• equip young people with real-world skills in planning and communication

• give young people the knowledge, understanding and skills they need to support future learning.

**Progression**

This class provides a broad and solid foundation for further study of various aspects of creative computing, such as graphic design, web design, computer games design and interactive media, and other aspects of computing.

It also enhances young people’s overall digital literacy and gives them a solid foundation for further study and employment.

**Recommended prior knowledge, skills and understanding**

The pre-requisite for this course is **Digital and Graphic Tools** or similar. The following skills and aptitudes will also be helpful:

● basic literacy

● basic numeracy

● motivation to work independently

● aptitude for working with computers.

UNIT 1: DEVELOPING WEB PRODUCTS

**Course structures**

**Digital Design for the Web**

Digital Design for the Web is taught over 240 guided learning hours (GLH) and comprises three mandatory units and one optional unit.

|  |  |  |
| --- | --- | --- |
| **Digital Design for the Web** | | |
| **Unit** | **Mandatory units**  Students must complete these units. | **GLH** |
| 1 | Artwork and Imaging | 90 |
| 2 | Developing Web Products | 30 |
| 5 | Coding for the Web | 30 |
| **Unit** | **Optional units**  Students must complete **one** of these two optional units. | **GLH** |
| 3 | Creative Multimedia | 90 |
| 4 | Game Making | 90 |

**Assessment Objectives**

There are **four** Assessment Objectives (AOs). They detail the knowledge, skills and understanding that students are required to demonstrate.

|  |  |
| --- | --- |
|  | **Students are required to demonstrate practical capability\* in:** |
| AO1 | applying creative processes to design digital products |
| AO2 | selecting and preparing appropriate digital content |
| AO3 | developing and testing effective, fit-for-purpose digital products |
| AO4 | evaluating the fitness for purpose of digital products. |

**\***capability = ability to apply knowledge and skills purposefully

**Assessment Objective weightings for the Digital Design for the Web**

The weightings for each Assessment Objective for Digital Design for the Web are shown below.

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Percentage weightings** | | |
|  | Unit 1 | Unit 5 | Unit 2/Unit 3/Unit 4 |
| AO1 | 21.2 | 24.2 | 27.3 |
| AO2 | 27.3 | 24.2 | 27.3 |
| AO3 | 39.4 | 42.5 | 33.3 |
| AO4 | 12.1 | 9.1 | 12.1 |
| Total | 100% | 100% | 100% |

UNIT 1: DEVELOPING WEB PRODUCTS

**Assessment summary**

**Summative Project Briefs**

All units will be assessed through a Summative Project Brief.

The Summative Project Brief is the means by which students bring together the knowledge, skills and understanding they have acquired throughout the unit into a synoptic piece of work. There is a Summative Project Brief for each unit.

**Unit structure**

The units are divided into a number of sections.

**Introduction**: provides the rationale for the unit, including its vocational relevance.

**What you need to learn**: sets out the knowledge, understanding and skills that students need to learn and apply.

**How you will be assessed**: summarizes the assessment requirements for the unit.

**Links**: shows the relationship with other units in the course

**Resources**: lists suggested resources such as books, software, magazines.

UNIT 1: DEVELOPING WEB PRODUCTS

**Unit 1: Developing Web Products**

**Level: 1**

**Guided Learning Hours: 30**

**Introduction**

Ever wondered what makes a good web page? The thing that all successful web products have in common is that they are all well designed and functional – in other words they look good and serve a purpose.

The aim of this core unit is to give you the knowledge and skills you need to be able to produce attention-grabbing web products. You need to take this unit before you start any optional units.

You will learn how to use web-authoring software to combine elements such as text, images and multimedia assets into an effective web product, designed for a specific purpose and audience.

You will demonstrate your ability to design, build and test a web product through your response to a summative project brief.

**What you need to learn**

**1.1 Audience and purpose**

The project lifecycle usually begins with a client brief. You need to know that a client brief includes information on:

• the purpose of the website, such as to:

o convey a message

o promote a product or service

o inform

o entertain

• the target audience.

**1.2 Site structure and consistency**

As part of the planning for the website, you will learn how to create a structure chart showing:

• how many pages the website will have

• how they are organised

• what will go on each page.

All the web pages must be consistent in structure and appearance. You will learn how to use a template or master page to set the:

• page size

• banner height and width

• navigation bar

• color scheme

• font, size and color

• page footer.

**1.3 Page design and layout**

You will design all of the web pages in the site. For each page layout you should consider:

• the suitability of the page template

• the information you want to include

• images – quantity, size and position

• text – position of headings and body copy

• interactivity – links, hotspots and rollovers

• multimedia assets – video, audio, animation

• where each asset should appear on the page

• the balance between text and images

• how to make the information clear to the user.

UNIT 1: DEVELOPING WEB PRODUCTS

**1.4 Content selection and preparation**

You need to know how to source, select and prepare content. You will learn how to:

• create content (photography, written text)

• source content, (image banks, assets, e.g. audio, video)

• prepare images

o crop

o re-size

• store in the root folder

• present text using formatting features, e.g. line spacing, bullets and numbering, paragraphs.

You need to save assets in the most appropriate file formats:

• images (png and jpg)

• audio (mp3)

• video (swf, mov and mp4).

**1.5 Creating web pages**

To create your web pages, you will learn how to use appropriate web-authoring software to:

• arrange content on the page

o create and use tables

o insert and position assets, including text, images and multimedia files

o resize images and retain proportions

o border, margin and padding

o present text, e.g. using web-friendly fonts

o styling links – link, visited, hover, active

• use color, e.g. foreground, background

• create interactive components, including:

o navigation bars

o hyperlinks – internal, external, email

o rollovers

o hotspots.

**1.6 Testing** You will learn how to carry out functionality testing of a website, including:

• multimedia assets work as intended

• hyperlinks work as expected with no dead ends

• any interactive actions work as intended.

You will also learn how to carry out usability testing to test ease of navigation.

UNIT 1: DEVELOPING WEB PRODUCTS

**1.7 Review** It is always important to review the finished website in relation to the purpose and target audience.

You will:

• gather feedback from users/peers/experts

• respond to feedback

• comment on the strengths and weaknesses.

**How you will be assessed for Unit 1: Developing Web**

**Products**

This unit takes a holistic approach to the assessment of knowledge, understanding and skills. You will demonstrate your knowledge and understanding of the content by how well you perform the tasks in the project brief that will be given to you.

The Summative Project Brief requires you to use web-authoring software and other software tools to create a web product for a specified audience and purpose, using a client brief.

You will be expected to complete the Summative Project Brief in 10 hours. You will be expected to:

|  |
| --- |
| (a) Design a consistent page layout (6 points) |
| (b) Select, prepare and present content (7 points) |
| (c) Create web pages using web-authoring software (7 points) |
| (d) Produce a functional website (9 points) |
| (e) Review the website (4 points) |

**Links to other units**

This unit provides grounding in knowledge and skills that will be required in the optional units. **Students should complete the learning for this unit before starting the optional units**.

**Resources**

|  |  |
| --- | --- |
|  |  |
| **Magazines** | *.net*  *Web Designer* |
| **Software** | **Web-authoring software**  For example:  • Adobe Dreamweaver  **Image manipulation software**  For example:  • Adobe Fireworks  • Adobe Photoshop  **Office applications**  For example:  • Google docs  • Microsoft Office  • Open Office |
| **Websites** | Best Designs – [www.thebestdesigns.com](http://www.thebestdesigns.com/)  Design Shack – [www.designshack.net](http://www.designshack.net/)  W3 Schools – [www.w3schools.com](http://www.w3schools.com/) |

UNIT 2: CREATIVE MULTIMEDIA

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**Unit 2: Creative Multimedia**

**Guided Learning Hours: 90**

**Introduction**

This unit is about making products such as websites, presentations and games. These products are called multimedia because they use combinations of text, images, sound, video and interactive assets such as hyperlinks.

You will explore a range of existing multimedia products to find out how, depending on the purpose of the product, different multimedia assets are used.

You will learn how to design multimedia products of your own by setting out exactly how you want each screen to look, the assets you need and how the product will work.

You will learn how to gather the assets you need. In some cases, you will be able to use ready-made assets but you will also need to learn how to create new assets yourself, such as recording a sound or taking a photograph.

You will learn how to combine all the assets into a multimedia product and how to test it thoroughly, get feedback and make any necessary changes.

You will demonstrate your ability to design, build and test multimedia products through your work on a major project set by your teacher.

UNIT 2: CREATIVE MULTIMEDIA

**What you need to learn**

**2.1 Exploring multimedia products**

You will look at different types of multimedia products and their purpose, including:

● presentations, information points, e-books (education)

● games, videos (entertainment)

● websites, digital adverts (Pointseting).

You need to consider the features of the products, such as:

● navigation and/or layout

● content

● interactivity

● use of color

● different types of multimedia assets used (text, graphics, sound, video, animation)

● fitness for purpose/audience.

**2.2 Designing multimedia products**

You need to plan carefully to produce multimedia products that are fit for audience and purpose.

You need to be clear who a product is for, its purpose, what types of multimedia assets are required and any technical requirements.

Once you have answered these questions you can start to make decisions about:

● content

○ text (font, color, size, language)

○ images

○ sound, (effects, music, voice)

○ video

● layout (proportions, consistency)

● structure

● navigation (navigation bar, text and graphical links)

● accessibility features (font size , color contrast).

You will learn how to use design documents, including:

● plans for layout and content

● storyboards for moving images

● timelines and scripts for audio

● structure charts to show how screens link.

You will learn how to gather feedback from others on your initial designs and how to decide what changes to make.

UNIT 2: CREATIVE MULTIMEDIA

**2.3 Producing digital assets**

You need to collect suitable content for your multimedia products, including ready-made assets **and** those you create yourself.

You will learn how to find ready-made assets such as:

● images from picture galleries or clipart collections

● video from film libraries or video clip collections

● audio (effects, music) from sound libraries

● text from websites, books or magazines.

You will learn how to log sources and details of any assets you decide to use, including:

● where each asset came from

● who created it

● the amount of copyright material used, e.g. two minutes of video footage, a logo or music

● where you have used the copyright material.

You will learn how to use a range of digital tools to create and edit assets, including:

● using software to produce and format text

● capturing images using a camera, scanner or mobile phone

● using graphic and drawing tools to create images

● simple editing of text and images (color/shading, cropping and resizing, brightness and contrast, formatting)

● recording and editing sound

o capture and import sound

o use formatting and editing features (apply effects, use transitions, edit timeline)

o produce finished sound file and export to appropriate file type

● recording and editing video and movies

o capture and import video footage, sound, still images

o use transitions, titles and credits

o produce finished video/movie.

You will learn how to select appropriate file names and formats for the assets you collect.

UNIT 2: CREATIVE MULTIMEDIA

**2.4 Developing multimedia products**

**2.5 Standard ways of working**

When you have a detailed design for a product you can start to develop it using appropriate software.

You will learn how to:

● use contrast, pattern, background

● use fonts and styles

● create and modify frames and tables

● add lines and simple shapes

● use hyperlinks

● implement moving images and sound

● use master slides and templates

● create slide transitions

● link components (sound, video, graphical and text links).

You will learn how to test your products to ensure that:

● the content is correct

● every link works and goes where it should

● other people can use the product without help

● the product works away from the computer/network on which it has been created.

You will also to learn how to:

● respond to feedback from others

● decide and log what needs to be changed

● check that the product still works correctly after you make changes.

While working on a project you will be expected to use ICT safely, efficiently and legally. You need to learn about these standard ways of working:

● working safely

o select and adjust system settings, e.g. privacy settings

o take regular breaks

o handle and store media correctly

o use the internet in a responsible and safe way

● file management

o save work regularly

o use sensible filenames

o set up directory/folder structures to organise files

o make regular backups and versions to show progress

● personal effectiveness

o select appropriate ICT tools and techniques

o use available sources of help

UNIT 2: CREATIVE MULTIMEDIA

**2.6 Product review**

● quality assurance

o use quality assurance tools, e.g. spell and grammar check and print preview

o proofread

o seek views of others

o test components

● legal issues

o acknowledge sources

o avoid plagiarism.

You will learn how to review your products, including:

● how well they work

● how easy they are to use

● responding to feedback from test users/reviewers and action taken

● making valid suggestions for further improvements.

**2.7 Presenting your work**

You will learn how to present your work to others. It will be viewed onscreen. You will make decisions about:

● multimedia products

● supporting evidence

● suitable file types

● appropriate file names

● links to the evidence and products from a single index page.

You need to test your evidence and ensure that products and links work, also that the evidence opens on different computers/networks. You should ask your test buddy to test everything as well as testing it all yourself.

UNIT 2: CREATIVE MULTIMEDIA

**How you will be assessed for Unit 2: Creative Multimedia**

This unit takes a holistic approach to the assessment of knowledge, understanding and skills. You will demonstrate your knowledge and understanding of the unit content by working through the tasks in a project brief that will be given to you.

This summative project brief requires you to create multimedia products for a specified audience and purpose.

It is expected that the summative project brief will take you 30 hours to complete. You will be expected to:

|  |
| --- |
| (a) Design multimedia products (7 points) |
| (b) Produce digital assets (9 points) |
| (c) Develop multimedia products (9 points) |
| (d) Present work (4 points) |
| (e) Review the products (4 points) |

* Strand (a) requires explicit detailed designs with justification of decisions and descriptions of assets.
* Strand (b) focuses on the gathering and preparation of assets for use in the products but acknowledgment of assets is in strand (a).
* Strand (c) focuses on demonstrating awareness of audience and purpose by developing a set of products that meet requirements. Prototyping and testing are inferred from the quality of the outcomes.
* Strand (d) requires the production of a multimedia eportfolio using assets and explanations that are appropriate for the audience. Prototyping and testing are inferred from the quality of the product.
* Strand (e) requires a realistic evaluation of the products with consideration of feedback from reviewers. There is no requirement for explicit comments on the student's own performance.

**Links to other units**

This unit develops and builds on the skills covered in *Unit 1: Developing Web Products*. It is recommended that students complete Unit 1 before undertaking this unit.

There are also links to *Unit 3: Artwork and Imaging* and *Unit*

*4: Game Making*.

**Resources**

**Software Artwork and imaging software**

For example:

● Adobe Fireworks

● Adobe Freehand

● Adobe Illustrator

● Adobe Photoshop

● Google Picasa 3 (freeware)

**DVD authoring software**

For example:

● Adobe Encore

● Adobe Premiere

**Media players (free downloads)**

For example:

● Flash Player

● Real Player

● QuickTime Player

● Windows Media Player

**Multimedia authoring software**

For example:

● Adobe Flash

**Multimedia tools**

For example:

● Audacity (freeware)

● QuickTime Pro

**Video capture and editing software**

For example:

● Adobe Premiere

**Screen-recording software**

For example:

● Adobe Captivate

● Debugmode Wink (freeware)

● TechSmith Camtasia

**Websites Resources**

Creative Commons – [www.creativecommons.org.uk](http://www.creativecommons.org.uk/)

Freeplaymusic.com – Morguefile.com

Open Clip Art Library – [www.openclipart.org](http://www.openclipart.org/)

Professional vector clipart (includes free section) –

[www.clipart-design.com](http://www.clipart-design.com/)

**Providers’ solutions**

Adobe – [www.adobe.co/uk/education](http://www.adobe.co/uk/education)

Apple Learning Interchange –

<http://edcommunity.apple.com/ali>

UNIT 3: ARTWORK AND IMAGES

**Unit 3: Artwork and Imaging**

**Guided Learning Hours: 90**

**Introduction**

This unit is about making graphic products that consist of elements such as photographs, shapes and drawings.

You will explore a range of existing graphic products to find out how they are used in different contexts, for example advertising, fashion and games.

You will learn how to design graphic products of your own by setting out exactly how you want each product to look and the elements you need.

You will learn how to gather the elements you need. In some cases, you will be able to use ready-made elements but you will also need to learn how to create new elements yourself, such as producing a drawing or editing a photograph.

You will learn how to combine all the elements into a graphic product and how to test it thoroughly, get feedback and make any necessary changes.

You will demonstrate your ability to design, build and test graphic products through your work on a project set by your teacher.

**What you need to learn**

**3.1 Exploring artwork and images**

Images are an important part of how we communicate with each other. You will explore a variety of artwork and images used in graphic products, including:

● illustrations (books, magazines, newspapers and posters)

● symbols and signs in public places

● website and presentations

● posters, leaflets and calendars

● packaging

● plans and models.

You will consider the features of the products such as:

● audience and purpose

● graphic elements

● color and visual effect

● size and position.

**3.2 Designing artwork and images**

You need to plan carefully to produce graphic products that fulfil the brief and are fit for audience and purpose.

You need to be clear who a product is for, what its purpose is and what types of graphic elements are required.

Once you have answered these questions you can start to make decisions about:

● content (images, text, other artwork)

● layout (positioning, sizing, balance)

● accessibility (color contrast, alternative text).

You will learn to develop your ideas for your designs using stimulus such as:

● photographs or parts of photographs taken by you or from the internet

● sketches, drawings or paintings of people, places, or objects

● diagrams, maps, plans

● background images or textures

● text in a particular typeface or font

● colors and color combinations, patterns or effects.

You will learn how to gather feedback from others on your initial designs and make changes in response to it.

|  |  |
| --- | --- |
| **3.3 Image types** | You will work with two different image types: vector and bitmap. You need to know what each one is most suitable for.  You will learn that vector images:  ● can be edited and filled with color  ● are used for more precise images, e.g. maps, drawings, logos, clipart, lettering  ● can be made bigger or smaller without losing any detail  ● are not used to create photographic images  ● generally require less storage space than bitmap images.  You will also learn that bitmap images:  ● are made up of individual pixels that can be set to one color  ● are used for photographs or images with continuous colors  ● will lose detail if they are made too big or small. |
| **3.4 Developing artwork and images** | You will develop content for your graphic products, including ready-made elements *and* elements you create yourself.  You will learn about the various options available and show evidence of different approaches, including:  ● trying out particular tools to see how they can be used in your images  ● exploring alternative ways of achieving the same effect  ● using the work of another designer, illustrator or artist as a stimulus  ● experimenting with different ways of conveying messages  ● using combinations of vector and bitmap images.  You will make sure that your final images are fit for purpose and that their development, from idea to finished image, is evidenced.  You will learn how to select appropriate file names and formats for the elements you use. |

**3.5 Use drawing tools**

You will learn how to use a range of digital tools to create and edit elements, including:

● stroke and fill

o paint the stroke and fill separately

o alter the thickness of the stroke

o alter the fill, such as pattern

● edit and arrange vector images

o cut, copy and paste

o duplicate or clone

o crop and resize

o cut and join lines or shapes

o group/ungroup

● combine basic shapes and freehand drawing

● use text

o insert, format and edit

o apply special effects, e.g. shadows

● save vector images

o common file formats

o formats for print and web and/or screen display.

UNIT 3: ARTWORK AND IMAGES

**3.6 Use image editing tools**

**3.7 Standard ways of**

**working**

You will learn how to use a range of digital tools to create and edit elements, including:

● creating bitmap images or elements

● scanning images

● downloading pictures from a digital camera

● drawing/painting images

● editing bitmap images

o cut, crop and move elements

o select parts of images

o adjust color

o apply special effects

o use layers in bitmap images

o combine images and parts of images

● using text in bitmap images

● saving bitmap images

o common file formats

o formats for print and web and/or screen display

● combining bitmap elements and vector elements in a composite image.

While working on a project you will be expected to use ICT safely, efficiently and legally. You need to learn about these standard ways of working:

● working safely

o select and adjust system settings, e.g. privacy settings

o take regular breaks

o handle and store media correctly

o use the internet in a responsible and safe way

● file management

o save work regularly

o use sensible filenames

o set up directory/folder structures to organise files

o make regular backups and versions to show progress

● personal effectiveness

o select appropriate ICT tools and techniques

o use available sources of help

● quality assurance

o use quality assurance tools, e.g. spell and grammar check and print preview

o proofread

o seek views of others

o test components

● legal issues

o acknowledge sources

o avoid plagiarism.

UNIT 3: ARTWORK AND IMAGING

|  |  |
| --- | --- |
| **3.8 Preparing images for screen** | In preparing images for screen publication you will consider:  ● the quality of the image (resolution, colors used)  ● the file format (compression, format, size, bandwidth (download speed).  You will learn about:  ● different color systems (RGB, CMYK, greyscale, BW)  ● colors and fonts that are suitable for the web. |
| **3.9 Preparing images for print** | In preparing images for print you will consider:  ● printer (type, number of colors, resolution)  ● medium (paper, card, fabric)  ● paper (size, layout, orientation)  ● image size.  You will learn how to make sure that your printed image looks how you want it to by:  ● setting an appropriate resolution and image size  ● selecting an appropriate file type. |

|  |  |
| --- | --- |
| **3.10 Present work** | You will learn how to present your work to others. It will be viewed onscreen. You need to make decisions about:  ● graphic products  ● supporting evidence  ● suitable file types  ● acceptable file names  ● links to the evidence and products from a single index page. |
| **3.11 Product review** | You will learn how to review your products, including:  ● how well they work  ● how easy they are to use  ● how well they meet the brief  ● responding to feedback from test users/reviewers and action taken  ● making suggestions for further improvements. |

UNIT 3: ARTWORK AND IMAGES

**How you will be assessed for Unit 3: Artwork and**

**Imaging**

This unit takes a holistic approach to the assessment of knowledge, understanding and skills. You will demonstrate your knowledge and understanding of the content through how well you perform the tasks in the Summative Project Brief given to you.

This Summative Project Brief will require you to produce images and artwork for a specified purpose and audience. It is expected that it will take you 30 hours to complete.

You will be expected to:

|  |
| --- |
| (a) Design and develop graphic products (7 points) |
| (b) Create graphic elements (9 points) |
| (c) Produce artwork and images (9 points) |
| (d) Present work (4 points) |
| (e) Review the products (4 points). |

* Strand (a) focuses on demonstrating awareness of audience and purpose by designing and developing a set of products that meet requirements, with justification of decisions. Prototyping and testing are inferred from the quality of the outcomes.
* Strand (b) focuses on the use of vector drawing tools to develop elements for use in the products.
* Strand (c) focuses on the use of bitmap tools to develop elements for use in the products.
* Strand (d) requires the production of an eportfolio using graphic elements and explanations that are appropriate for the audience. Prototyping and testing are inferred from the quality of the product.
* Strand (e) requires a realistic evaluation of the products with consideration of feedback from reviewers. There is no requirement for explicit comments on the student's own performance.

**Links to other units**

This unit develops and builds on skills covered in *Unit 1: Developing Web Products*. It is recommended that students complete Unit 1 before undertaking this unit.

This unit also has links to *Unit 3: Artwork and Imaging* and

*Unit 4: Game Making*.

**Resources**

|  |  |
| --- | --- |
|  |  |
| **Software** | **Bitmap-based software**  For example:  ● Adobe Fireworks  ● Adobe Photoshop  ● Adobe Photoshop Elements  I  **Image database software** For example:  ● Picasa  **Screen-recording software**  For example:  ● Adobe Captivate  ● TechSmith Camtasia  **Vector-based software**  For example:  ● Adobe Fireworks  ● Adobe FreeHand  ● Adobe Illustrator |

UNIT 4: GAME MAKING

**Unit 4: Game Making**

**Guided Learning Hours: 90**

**Introduction**

This unit is about making games.

What makes some games better than others? What will appeal to different age groups?

You will learn how to plan, design and create simple games for others to play.

You will learn how to gather and prepare the assets you need, such as sounds and graphics.

You will learn how to combine all of these assets into a game and how to test it thoroughly, get feedback and make any necessary changes.

You will demonstrate your ability to design, build and test games through your work on a project set by your teacher.

**What you need to learn**

**4.1 Exploring computer games**

You will look at different types of simple computer games, e.g. puzzles, mazes.

You will consider the following features of games:

● style, e.g. cartoon, retro, realistic

● platform, e.g. tablet, mobile phone, console

● game elements, e.g. sound effects, music, speech, story, characters, sprites, backgrounds, fonts

● game play, e.g. scoring, levels, rules, instructions, controls, interaction.

**4.2 Producing a game overview**

You will learn how to produce an overview of your initial ideas to show other people what you are planning, including:

● target audience

● key features (theme, purpose, how it will start, what players must do, characters, assets)

● PEGI rating

● platform.

You will learn how to ask for feedback from others on your overview and how to decide what changes to make.

UNIT 4: GAME MAKING

**4.3 Designing games for others to play**

Games must be carefully designed if they are to work as intended and be fun to play.

You will learn how to produce designs for games, including:

● audience and purpose

● the game environment

● levels

● assets

● story

● challenges

● rules

● navigation and controls

● interaction.

You will learn how to make use of feedback from others on your designs and to be prepared to make changes if necessary.

You will learn how to keep a record of your progress, noting down your design decisions and why you made them.

**4.4**

**Developing games for others to play**

You will need to produce (gather, prepare and import) all the digital assets for the game, including:

● backgrounds

● objects

● sprites

● sounds.

You can use ready-made assets, providing you have permission to do so, or you may wish to produce some original assets of your own.

You must be able to:

● select sprite properties (size, background transparency)

● select color/pattern

● produce and use sounds (created, sourced)

o type (effect, music)

o use (play once, looped, volume)

● select and use sound types, e.g. wav, midi, mp3

● select and create properties for game objects, e.g. visibility, opacity, depth, rotation, scale

● select game events associated with game objects

● trigger game events associated with mouse/keyboard (object movement and timings, collision detection, score)

● select and apply background

● select and apply effects

● select and apply player starting points.

The process of developing a game includes:

● creating features (scoring systems, events, controls, actions)

● testing that the game works (functionality, e.g. logic, rules, events, actions and controls, user instructions)

● getting feedback on the user experience

(playability, interactivity).

**4.5 Standard ways of**

**working**

While working on a project you will be expected to use ICT safely, efficiently and legally. You will learn about these standard ways of working:

● working safely

o select and adjust system settings, e.g. privacy settings

o take regular breaks

o handle and store media correctly

o use the internet in a responsible and safe way

● file management

o save work regularly

o use sensible filenames

o set up directory/folder structures to organize files

o make regular backups and versions to show progress

● personal effectiveness

o select appropriate ICT tools and techniques

o use available sources of help

● quality assurance

o use quality assurance tools, e.g. spell and grammar check and print preview

o proofread

o seek views of others

o test components

● legal issues

o acknowledge sources

o avoid plagiarism.

**4.6 Reviewing games**

You will learn how to review the strengths and weaknesses of your game by considering:

● how well it works

● how suitable it is for the target audience

● interactivity (controls, effects)

● functionality (logic)

● instructions (clarity, help)

● feedback

● responses to feedback.

**4.7 Presenting work**

You will learn how to present all the evidence of your work to others. It will be viewed on screen and will need to include:

● the digital product (the final game)

● supporting evidence

● suitable file types

● appropriate file names

● links to evidence and products from a single index page

UNIT 4: GAME MAKING

**How you will be assessed for Unit 4: Game Making**

This unit takes a holistic approach to the assessment of knowledge, understanding and skills. You will demonstrate your knowledge and understanding of the content through how well you perform the tasks in the Summative Project Brief given to you.

It is expected that the Summative Project Brief will take you 30 hours to complete. You will gain points for:

|  |
| --- |
| (a) Design and development work (9 points) |
| (b) Game functionality (7 points) |
| (c) User experience (9 points) |
| (d) Game review (4 points) |
| (e) Presenting work (4 points) |

Strand (a) focuses on demonstrating awareness of purpose by designing a game, including a moodboard for the game, and preparing appropriate content for it.

Strand (b) focuses on the functionality of the game, including challenge and logic.

Strand (c) focuses on the user experience, including usability testing

Strand (d) requires the production of a promotional product to attract interest in the game.

Strand (e) requires a realistic evaluation of the game with consideration of feedback from reviewers.

**Links to other units**

This unit develops and builds on skills covered in *Unit 1: Developing Web Products*. It is recommended that students complete Unit 1 before undertaking this unit.

This unit has links to *Unit 2: Creative Multimedia* and *Unit 3: Artwork and Imaging*.

**Resources**

**Books** Bigelow D – *Construct Game Development Beginner's Guide*

(PACKT 2012) ISBN 9781849516600

The LEAD Project – *Super Scratch Programming Adventure!*

2nd edition (No Starch Press, 2013)

ISBN 13 9781593275310

UNIT 4: GAME MAKING

**Software For game authoring at**

For example:

● Game Maker: Studio

● GameSalad Creator

● Scratch

**For sprite production**

For example:

● Fireworks

● GraphicsGale <http://www.humanbalance.net/gale/us/>

● Photoshop

**For sound**

For example:

● Audacity

● Jamstudio (online)

**Video capture and editing software**

For example:

● Adobe Premiere

● Microsoft Moviemaker

**Screen-recording software**

For example:

● Adobe Captivate

● TechSmith Camtasia

**Websites** [gamesalad.com/](http://gamesalad.com/) – GameSalad site with tutorials, includes some free assets but assets are mainly to buy

<http://opengameart.org/>– a wide range of free assets, includes music, sound effects, sprites and backgrounds

<http://www.widgetworx.com/spritelib/>– Ari Feldman’s royalty- free sprite collection

[scratch.mit.edu/](http://scratch.mit.edu/) – Scratch website with a range of resources soundbible.com/ – royalty-free sound effects

spriters-resource.com – sprite assets [www.bfxr.net/](http://www.bfxr.net/) – sound effect creation tool [www.charas-project.net/](http://www.charas-project.net/) – online sprite creation tool [www.freesound.org/](http://www.freesound.org/) – royalty-free sound effects

[www.pacdv.com/sounds/index.html](http://www.pacdv.com/sounds/index.html) – royalty-free sound effects

[www.partnersinrhyme.com](http://www.partnersinrhyme.com/) – royalty-free sound effects [www.scirra.com/construct2](http://www.scirra.com/construct2) – Construct 2 site with tutorials,

includes some free assets but assets are mainly to buy

[www.yoyogames.com](http://www.yoyogames.com/) – gamemaker site, tutorials and resources

UNIT 5: CODING FOR THE WEB

**Unit 5: Coding for the Web**

**Guided Learning Hours: 30**

**Introduction**

Do you want to be able to create modern, interactive websites? Then you need to have control over the programming languages that power the web.

This unit is about front-end web development. You will

learn coding methods and techniques using HTML, CSS and

JavaScript. These are the fundamental technologies for building web pages and they are executed in the web browser so you will learn how to program your web pages to render in an appropriate browser.

You will demonstrate your ability to combine HTML, CSS and JavaScript together through your response to a client brief set by your teacher.

UNIT 5: CODING FOR THE WEB

**What you need to learn**

**5.1 Writing code** You will need to write and edit HTML and CSS codes.

This can be done using:

• a text editor

• an HTML editor

• the code view of a visual editor. When structuring your files, you need to:

• create a directory structure with

o a top-level folder (root folder)

o sub-directories, e.g. img, js, css

• adopt appropriate file-naming conventions:

o index.html (homepage)

o lower-case file names

o separating words with a dash

• save files in an appropriate format, e.g. HTML

• use relative and absolute URLs to link to assets and other web pages.

**5.2 Planning** As part of the planning for a website project, you will learn how to create a site map and a wireframe

showing:

• page size

• the key information to be included on each page

• the size and position of the information.

**5.3 HTML** HTML describes the structure of web pages. You will learn how to write and edit:

• HTML elements – opening and closing tags, attributes and values

• structural elements – DOCTYPE, html, head, meta, title, link and body

• organizational elements – div, span, table

• global attributes – class, id, title

• elements that control text – headings, paragraph, bold and italic, line break, horizontal rule

• elements and attributes that control images – adding images, specifying height and width, alternate text

• links – <a> element and href attribute, internal, external, email

• lists – ordered, unordered, definition, nested.

UNIT 5: CODING FOR THE WEB

**5.4 Styling with**

**CSS**

Cascading Style Sheets (CSS) control the presentation of the page content. You will learn how to write and edit:

• internal and/or external style sheets

• CSS rules

o selector and declaration blocks (containing properties and values)

o referencing – elements, attributes, e.g. id attribute or class attribute

• units – pixel, percentage, em

• color – names, hexadecimal numbers, RGB

• properties that style text – font-family, font- size, font-style, font-weight, line-height, text- decoration, text-align

• properties that style links – link, visited, focus, hover, active

• properties that style boxes – background, display, width and height, margin and padding, border, overflow

• properties that style images – size, aligning images, background images, image rollovers and sprites.

**5.5 Controlling layouts with CSS**

CSS can also be used to create the layout. You will learn how to position elements using:

• normal flow

• relative positioning

• absolute positioning

• fixed positioning

• floating elements and clearing floats.

You will also have to prioritize and organize your content by:

• creating a visual hierarchy through

o size

o color

o style

• grouping similar elements

• minimizing scrolling.

**5.6 Creating tables for information**

A table represents information in a grid format. You will learn how to write and edit:

• HTML elements that control tables – table, row, cell, headings, spanning columns and rows

• CSS properties that style tables, e.g. padding on cells, headings, shading alternate rows, aligning numerals.

UNIT 5: CODING FOR THE WEB

|  |  |  |
| --- | --- | --- |
| **5.7** | **JavaScript** | JavaScript is a client-side scripting language that |
|  | | enables interactivity. You need to learn how to  incorporate JavaScript into HTML to control an image slider/gallery or carousel. |
| This will involve: |

• incorporating JavaScript into the page by

either

o embedding the JavaScript into the HTML

with the script element

o linking to an external .js file

• creating and editing JavaScript which may

include variables, conditionals, loops, functions, event attributes and properties

• using JavaScript libraries, e.g. JQuery.

**5.8 Testing and review**

Browser developer tools allow you to inspect, edit, debug, log and profile HTML, CSS and JavaScript.

You will test your web pages in a modern browser and

complete a test log to record that the:

• pages load all of the required content

• pages function as intended

• layout is as intended.

•

You will also consider:

• feedback from users (test buddies)

• the strengths and weaknesses of the finished website

• how to improve the website.

**How you will be assessed for Unit 5: Coding for the Web**

This unit takes a holistic approach to the assessment of knowledge, understanding and skills. You will demonstrate your knowledge and understanding of the content through how well you perform the tasks in the Summative Project Brief that will be given to you.

The Summative Project Brief will require you to combine HTML, CSS and JavaScript to create a website, using a client brief.

It is expected the project will take you 10 hours to complete.

You will be expected to:

|  |
| --- |
| (a) Plan, write and edit HTML (9 points) |
| (b) Write and edit CSS (9 points) |
| (c) Incorporate interactive elements through JavaScript (7 points) |
| (d) Create page layouts (4 points) |
| (e) Test and review (4 points) |

UNIT 5: CODING FOR THE WEB

**Links to other units**

This unit develops and builds on skills covered in *Unit 1: Developing Web Products* and it is therefore recommended that this unit be delivered after or alongside Unit 1.

**Resources**

|  |  |
| --- | --- |
| **Books** | Castro E & Hyslop B – *HTML5 & CSS3: Visual QuickStart*  *Guide* (Peachpit Press, 2011) ISBN 9780321719614  Duckett J – *HTML & CSS* (John Wiley & Sons, 2011) ISBN 9781118008188  Duckett J – *JavaScript & JQuery: Interactive Front-end Web*  *Development* (John Wiley & Sons, 2014)  ISBN 9781118531648  McManus S – *Web Design In Easy Steps* (In Easy Steps,  2011) ISBN 9781840783803 |
| **Magazines** | .*net*  *Web Designer* |
| **Software** | **Text editors**  For example:  • Notepad  • TextEdit  • TextPad  **HTML editors**  • Coda  • Sublime Text  • TextMate  **Web-authoring software**  For example:  • Adobe Dreamweaver  **Image manipulation software**  For example:  • Adobe Fireworks  • Adobe Photoshop |

**Browser developer tools**

For example:

• Chrome: Developer Tools

• Firefox

• Internet Explorer

• Opera: Dragonfly

• Safari: Web Inspector

**Websites** CodeSchool’s JavaScript Path –

[www.codeschool.com/paths/javascript](http://www.codeschool.com/paths/javascript)

JavaScript Testing – [www.jslint.com](http://www.jslint.com/)

J Query – [www.jQuery.com](http://www.jquery.com/)

W3C Validators – [www.](http://www/)[validator-suite.w3.org](http://www.w3.org/2013/ValidatorSuite/beta/)

World Wide Web Consortium – [www.w3.org](http://www.w3.org/)

**Grading Information**

|  |
| --- |
|  |
|  | Unit 1 | Unit 5 | Units 2, 3, 4 |
| Maximum | 20 | 20 | 120 |
| A\* | 16 | 16 | 96 |
| A | 14 | 14 | 84 |
| B | 12 | 12 | 72 |
| C | 10 | 10 | 60 |

**Grade descriptors**

**A\* -** Grade A\* students will demonstrate the ability to carry out highly competent design work. Product designs will be complete with a strong sense of a coherent theme or link across elements. Comments about design decisions will be specific showing great consideration for how the products will function and what the user experience will be.

Students will select creative content for their digital products. Most of the content selected will be highly suitable for the intended purpose. Students will demonstrate highly competent skill in the use of digital tools and media.

Students create assets and complete products which meet the requirements of the project brief and demonstrate an awareness of audience and purpose. They are able to reflect on their work and comment on the strengths and weaknesses of the assets used as well as the final products they produce.

Students will present work using appropriate file types and file names which provide access to all of the evidence through a single index page.

**B** - Grade B students will demonstrate the ability to carry out competent design work. Product designs will be complete with some sense of a coherent theme or link across elements. Comments about design decisions will be specific showing some consideration for how the products will function and what the user experience will be.

Students will select content for their digital products. Most of the content selected will be suitable for the intended purpose. Students will demonstrate adequate skill in the use of digital tools and media.

Students create assets and complete products which meet the requirements of the project brief and demonstrate an awareness of audience and purpose. They are able to reflect on their work and comment on the strengths and weaknesses of the assets used as well as the final products they produce.

Students will present work using appropriate file types and file names which provide access to all of the evidence through a single index page.

**C -** Grade C students will demonstrate limited ability to carry out design work. Product designs may be incomplete and any sense of a coherent theme or link across elements will be minimal. Comments about design decisions will be non-specific and general in tone giving only a limited indication of how the products will function and what the user experience will be.

Students will gather content for their digital products. The link between the gathered content and the intended purpose will be unclear and students will demonstrate only basic skill in the use of digital tools and media.

Students will create assets that may be unfinished or that fulfil few requirements of the brief. They will make descriptive rather than reflective comments about the assets used and the final products they produce. Comments will be limited and few will be meaningful.

Students will present work using appropriate file types that provide access to some of the evidence through a single index page.