

## Industry Related Manufacturing Technology

### Focus Area: Multimedia Technologies (Preliminary)

Students learn about:	Students learn to:
<p><b>Processes, tools and machines</b></p> <p><b>Multimedia computer systems</b></p> <ul style="list-style-type: none"> <li>• processor speed</li> <li>• RAM</li> <li>• graphics cards</li> <li>• storage</li> <li>• motherboards</li> <li>• screen type and resolution</li> <li>• sound cards</li> </ul> <p><b>Operating a computer system</b></p> <ul style="list-style-type: none"> <li>• basic system operation</li> <li>• select and operate computing packages – manipulate data between applications</li> <li>• input devices, including:                             <ul style="list-style-type: none"> <li>– keyboard</li> <li>– mouse</li> <li>– joystick</li> <li>– game controller</li> <li>– graphics tablet</li> <li>– microphone</li> <li>– scanners</li> </ul> </li> <li>• output devices:                             <ul style="list-style-type: none"> <li>– screens</li> <li>– printers (ink-jet and laser)</li> <li>– projectors</li> </ul> </li> <li>• internal and external storage devices:                             <ul style="list-style-type: none"> <li>– USB drives</li> <li>– compact disc</li> <li>– digital video disc</li> <li>– hard drives</li> </ul> </li> <li>• cameras:                             <ul style="list-style-type: none"> <li>– digital/analog</li> <li>– still/video</li> </ul> </li> <li>• communication devices:                             <ul style="list-style-type: none"> <li>– modems</li> <li>– ethernet</li> <li>– bluetooth</li> <li>– wireless</li> <li>– infra-red</li> <li>– firewire</li> <li>– USB</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• recognise computer hardware typically used in multimedia computer systems</li> <li>• identify computers and related hardware components</li> <li>• describe multimedia software and related memory, processing and storage requirements</li> <li>• understand and apply the procedures associated with the correct use of a computer system</li> <li>• manipulate and integrate data between a range of software applications</li> <li>• identify and use input and output devices in conjunction with specific multimedia software</li> <li>• identify and use a range of printers and scanners</li> <li>• identify and use a range of storage devices</li> <li>• set up and operate basic still and video cameras for use in small media production</li> <li>• identify and use modems and communication devices</li> <li>• investigate and use a range of software suitable for the creation, editing and publishing of multimedia projects</li> </ul>

Students learn about:	Students learn to:
<ul style="list-style-type: none"> <li>• appropriate software relevant to the project in the areas of:                             <ul style="list-style-type: none"> <li>– authoring</li> <li>– publishing</li> <li>– sound creation/capture/editing</li> <li>– image creation/capture/editing</li> <li>– video creation/capture/editing</li> <li>– text creation/capture/editing</li> <li>– animation creation/capture/editing</li> <li>– 2D/3D drawing</li> <li>– web page design</li> </ul> </li>   <li>• <b>Multimedia design in relation to:</b> <ul style="list-style-type: none"> <li>• storyboarding                                     <ul style="list-style-type: none"> <li>– types:   <ul style="list-style-type: none"> <li>- linear</li> <li>- non-linear</li> <li>- hierarchical</li> <li>- composite</li> </ul> </li> <li>– applications</li> </ul> </li> <li>• image creation/editing/conversion                                     <ul style="list-style-type: none"> <li>– bitmap</li> <li>– vector</li> <li>– scanning</li> <li>– formats</li> <li>– compression</li> </ul> </li> <li>• sound creation/editing                                     <ul style="list-style-type: none"> <li>– wave</li> <li>– MIDI</li> <li>– podcasts</li> <li>– compression formats/codecs</li> </ul> </li> <li>• video and still cameras                                     <ul style="list-style-type: none"> <li>– operation</li> <li>– lighting</li> <li>– angles/composition</li> </ul> </li> <li>• data integration</li> <li>• OHS                                     <ul style="list-style-type: none"> <li>– workplace procedures</li> <li>– safe handling of equipment</li> <li>– risk identification and hazard reduction strategies</li> </ul> </li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• investigate and use a range of software tools and techniques used in the development and publishing of websites</li>   <li>• identify and use planning processes related to a range of multimedia presentations</li>   <li>• investigate and discuss the processes of obtaining, creating and modifying images, sound and text</li>   <li>• produce and manipulate digital images</li>   <li>• plan and develop an audio podcast</li>   <li>• use presentation techniques and strategies in multimedia</li>   <li>• author a multimedia product</li>   <li>• apply principles of design in the planning and production of multimedia presentations</li>   <li>• recognise workplace health and safety procedures</li> <li>• safely use computing equipment and associated materials</li> </ul>

## Industry Related Manufacturing Technology

### Focus Area: Multimedia Technologies (HSC)

Students learn about:	Students learn to:
<p><b>Multimedia elements</b></p> <p><i>Text</i></p> <ul style="list-style-type: none"> <li>• fonts:               <ul style="list-style-type: none"> <li>– serif</li> <li>– sans serif</li> <li>– decorative</li> </ul> </li> <li>• formatting:               <ul style="list-style-type: none"> <li>– bold</li> <li>– italics</li> <li>– underline</li> <li>– alignment</li> <li>– indents</li> <li>– bullets</li> <li>– numbers</li> <li>– size</li> <li>– colour</li> </ul> </li> <li>• stroke and fill</li> <li>• headings, subheadings</li> <li>• formatting paragraphs and document</li> <li>• pagination</li> </ul> <p><i>Graphics</i></p> <ul style="list-style-type: none"> <li>• graphic images:               <ul style="list-style-type: none"> <li>– vector</li> <li>– bitmap</li> </ul> </li> <li>• resolution:               <ul style="list-style-type: none"> <li>– image size</li> <li>– colour depth</li> <li>– binary digits (bits), eg 8-bit, 16-bit, 24-bit</li> </ul> </li> <li>• file size: in relation to screen size and colour depth</li> <li>• file formats:               <ul style="list-style-type: none"> <li>– TIFF</li> <li>– BMP</li> <li>– PCX/PICT</li> <li>– JPEG</li> <li>– GIF</li> <li>– PNG</li> </ul> </li> <li>• importing images:               <ul style="list-style-type: none"> <li>– clip art</li> <li>– screen capture</li> <li>– scanning</li> <li>– graphics tablet</li> <li>– cameras                   <ul style="list-style-type: none"> <li>- still</li> <li>- video</li> </ul> </li> <li>– image libraries</li> <li>– stock photographs</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• author a multimedia Major Project</li> <li>• select and competently use a range of input and output devices, printers, cameras and scanners in the production of the Major Project</li> <li>• investigate and use a range of multimedia components in the development and publishing of the Major Project</li> <li>• competently plan all processes and stages required to complete the Major Project</li> <li>• apply principles of design in the planning and production of the Major Project</li> <li>• produce storyboards to plan presentations and the Major Project</li> <li>• produce multimedia elements, identify scope of authoring software, produce and evaluate prototypes</li> </ul>

Students learn about:	Students learn to:
<ul style="list-style-type: none"> <li>• object layering:                             <ul style="list-style-type: none"> <li>– text</li> <li>– other images</li> </ul> </li> <li>• image enhancements:                             <ul style="list-style-type: none"> <li>– filters</li> <li>– special effects</li> <li>– anti-aliasing</li> </ul> </li> <li>• image manipulation:                             <ul style="list-style-type: none"> <li>– stretch</li> <li>– skew</li> <li>– rotate</li> <li>– colour adjustment</li> </ul> </li> </ul> <p><i>Audio</i></p> <ul style="list-style-type: none"> <li>• sound waves:                             <ul style="list-style-type: none"> <li>– analogue and digital wave patterns</li> <li>– volume</li> <li>– frequency</li> </ul> </li> <li>• mono/stereo/surround sound</li> <li>• converting analogue to digital sound</li> <li>• sampling:                             <ul style="list-style-type: none"> <li>– sample rate</li> <li>– sample size</li> <li>– 8-bit</li> <li>– 16-bit</li> </ul> </li> <li>• relationship to file size: file compression</li> <li>• file formats:                             <ul style="list-style-type: none"> <li>– WAV</li> <li>– AIFF</li> <li>– MP3</li> <li>– WMA</li> <li>– MIDI</li> </ul> </li> </ul> <p><i>Video</i></p> <ul style="list-style-type: none"> <li>• video types:                             <ul style="list-style-type: none"> <li>– analogue</li> <li>– digital</li> </ul> </li> <li>• file size considerations:                             <ul style="list-style-type: none"> <li>– frame rate</li> <li>– image size</li> <li>– colour depth</li> </ul> </li> <li>• video compression:                             <ul style="list-style-type: none"> <li>– lossy</li> <li>– lossless</li> <li>– image quality</li> <li>– software</li> </ul> </li> <li>• video players</li> <li>• file types:                             <ul style="list-style-type: none"> <li>– MPEG</li> <li>– avi</li> <li>– MP4</li> </ul> </li> <li>• video editing:                             <ul style="list-style-type: none"> <li>– import/export</li> <li>– transitions</li> <li>– titles</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• obtain, create and modify images, sound and text</li> <li>• compose camera shots and operate still and video cameras</li> <li>• transform prototypes into a final product</li> <li>• select from a wide range of industry techniques and apply them in the production and presentation of the Major Project</li> <li>• obtain, create and modify images, sound and text</li> <li>• outsource appropriate expertise where necessary to complement personal practical skills</li> <li>• utilise the features of a range of storage devices</li> <li>• identify requirements of memory, processing speed, storage and peripherals to complete Major Project</li> <li>• outsource appropriate expertise where necessary to complement personal practical skills</li> </ul>

Students learn about:	Students learn to:
<ul style="list-style-type: none"> <li>- special effects, eg:               <ul style="list-style-type: none"> <li>- twisting</li> <li>- zooming</li> <li>- rotating</li> <li>- slow motion</li> <li>- time lapse</li> <li>- distorting</li> </ul> </li> <li>• synchronising sound</li> <li>• filters:               <ul style="list-style-type: none"> <li>- colour balance</li> <li>- brightness</li> <li>- contrast</li> <li>- blurring</li> <li>- morphing</li> </ul> </li> </ul> <p><b>Animation</b></p> <ul style="list-style-type: none"> <li>• 2D animation               <ul style="list-style-type: none"> <li>- cel animation (stop motion, claymation)</li> <li>- path animation</li> <li>- behaviour animation</li> <li>- morphing and tweening</li> <li>- frame rates</li> <li>- transitions</li> <li>- looping</li> </ul> </li> <li>• 3D animation               <ul style="list-style-type: none"> <li>- modelling</li> <li>- wire frame</li> <li>- rendering</li> <li>- morphing</li> <li>- warping</li> <li>- motion capture</li> </ul> </li> <li>• virtual reality               <ul style="list-style-type: none"> <li>- simulators</li> <li>- walkthroughs</li> <li>- navigable scenes</li> </ul> </li> </ul> <p><b>World Wide Web (www)</b></p> <ul style="list-style-type: none"> <li>• history and development               <ul style="list-style-type: none"> <li>- appropriate usage</li> <li>- targeted audience</li> <li>- age controls</li> <li>- censorship:                   <ul style="list-style-type: none"> <li>- violence</li> <li>- sex</li> <li>- language</li> </ul> </li> </ul> </li> <li>• implications of the World Wide Web on multimedia design relating to:</li> </ul>	<ul style="list-style-type: none"> <li>• identify and discuss animation requirements, scope of 2/3D animation software</li> <li>• evaluate the characteristics and features of a range of animation techniques</li> <li>• analyse and describe the technology associated with the World Wide Web</li> </ul>

Students learn about:	Students learn to:
<p><i>Text</i></p> <ul style="list-style-type: none"> <li>• font compatibility, font sets, font substitution</li> <li>• text as a graphic element</li> <li>• embedded text, eg:                             <ul style="list-style-type: none"> <li>– open type</li> <li>– true type</li> </ul> </li> <li>• cascading style sheets (CSS)</li> <li>• hyperlinks</li> <li>• scroll bars and buttons</li> <li>• drop-down lists</li> <li>• animated text:                             <ul style="list-style-type: none"> <li>– scrolling</li> <li>– distorting</li> </ul> </li> <li>• .pdf files</li> </ul> <p><i>Graphics</i></p> <ul style="list-style-type: none"> <li>• file size and compression, eg:                             <ul style="list-style-type: none"> <li>– GIF</li> <li>– JPEG</li> <li>– PNG</li> </ul> </li> <li>• progressive loading of images:                             <ul style="list-style-type: none"> <li>– interlaced GIF</li> <li>– progressive JPEG</li> </ul> </li> <li>• animated GIF</li> <li>• thumbnails</li> </ul> <p><i>Sound</i></p> <ul style="list-style-type: none"> <li>• sound quality</li> <li>• file size and compression</li> <li>• streaming</li> <li>• media players</li> </ul> <p><i>Video</i></p> <ul style="list-style-type: none"> <li>• video transfer:                             <ul style="list-style-type: none"> <li>– hypertext transfer protocol (HTTP)</li> <li>– real-time streaming protocol (RTSP)</li> </ul> </li> <li>• connection speed</li> <li>• web casting</li> <li>• buffering/streaming</li> </ul> <p><b>Major Project</b></p> <ul style="list-style-type: none"> <li>• appropriate software relevant to the Major Project in the areas of:                             <ul style="list-style-type: none"> <li>– authoring</li> <li>– publishing</li> <li>– sound creation/capture/editing</li> <li>– image creation/capture/editing</li> <li>– video creation/capture/editing</li> <li>– text creation/capture/editing</li> <li>– animation creation/capture/editing</li> <li>– 2D/3D drawing</li> </ul> </li> <li>• documentation                             <ul style="list-style-type: none"> <li>– online help and manuals</li> <li>– user documentation</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• increase and update knowledge of the multimedia industry</li> <li>• discuss the impact of changing technology</li> <li>• solve problems through accessing and using online help and manuals</li> <li>• investigate and competently use a range of suitable software in the creation, editing and publishing of the Major Project</li> <li>• apply a wide range of industry terminology, techniques and processes</li> <li>• prepare documentation to support the development of the Major Project</li> </ul>

<b>Students learn about:</b>	<b>Students learn to:</b>
<p><b>Intellectual property and ethics</b></p> <ul style="list-style-type: none"><li>• copyrights and multimedia</li><li>• ethical use</li><li>• ease of copying, manipulation and incorporating multimedia objects</li></ul> <ul style="list-style-type: none"><li>• OHS<ul style="list-style-type: none"><li>– workplace procedures</li><li>– safe handling of equipment</li><li>– risk identification and hazard reduction strategies</li></ul></li></ul>	<ul style="list-style-type: none"><li>• obtain, modify and use a range of pre-existing components</li><li>• consider legal and ethical issues in the development of multimedia presentations</li><li>• use computers, associated materials and accessories safely and responsibly</li><li>• identify specific OHS issues associated with the production of the Major Project</li></ul>