

Sample Program Build a basic website

Rationale: This program provides the opportunity for students to build a basic website consistent with design and technical requirements and business expectations.

Units of competency: ICAB4169A Use development software and IT tools to build a basic website

HSC Requirements and Advice – Key terms and concepts:

Use development software and IT tools to build a basic website	
<ul style="list-style-type: none"> • accuracy checks • audit website • basic website • business specifications • client review • client sign-off • consistency in design • copyright approval • design principles • develop/build a website • diverse user groups • feedback and evaluation • feedback mechanism • general features, benefits and limitations of development software and software tools • hypertext markup language (HTML) • HTML code • HTML compliance • navigation flow 	<ul style="list-style-type: none"> • planning of web pages • principles of web design • proofreading and review of website • read and interpret design documentation • recording test results • selection and working knowledge of development software and software tools appropriate for the task • site structure • technical requirements/needs • tracking processes • user approval • user input • validate information and content • version control • web development standards • website specifications • website testing • writing content.

Note: *ICAB4169A Use development software and IT tools to build a basic website* has **prerequisite** requirements (see Section 8 in Part A of the Syllabus and Section 2.2.1.2 in this document). Students must have achieved competence in the prerequisite units of competency **prior to commencing** study of *ICAB4169A*.

While *ICAB4169A* is compulsory for the Information Technology Curriculum Framework, if students have not achieved the prerequisite units of competency they **should not** commence learning for this unit. It is appropriate for students to spend more time working towards competency in the prerequisite units in lieu of *ICAB4169A*. It is **not appropriate** for students to be deemed competent in any unit of competency in order to enable them to commence study of *ICAB4169A*.

If students have met all other HSC course requirements, except that they did not undertake *ICAB4169A* as a part of the 240-hour course because they had not met prerequisite requirements, they should be considered to have satisfactorily completed the course.

Assessment:

Unit of competency/Performance criteria	Possible assessment strategy
<p><i>ICAB4196A Use development software and IT tools to build a basic website</i></p> <p>1 Select and analyse website structure and development tools</p> <p>1.1 Analyse business specification and select appropriate software</p> <p>1.4 Review design documentation and integrate design work with site structure and navigation, in accordance with web development standards</p>	<p>Task 1 <i>Website analysis portfolio</i></p> <p>1. Students visit the website of the olympic movement (www.olympic.org).</p> <p>Analyse its accessibility to diverse users considering a range of elements including:</p> <ul style="list-style-type: none"> • target audience • language versions • page layout and different reading patterns • colour • attempt to target audiences with special needs. <p>Evaluate site in terms of the following principles:</p> <ul style="list-style-type: none"> • best practice communication • accessibility • equity principles. <p>Students produce a report outlining their analysis and evaluation of the website and develop a proposal for improvements that could be made to the site.</p> <p>2. Develop a portfolio of websites that meet the needs of diverse user groups. Annotate the websites to identify their effective and ineffective design elements and their accessibility to diverse groups.</p>

<p><i>ICAB4196A Use development software and IT tools to build a basic website</i></p> <p>1 Select and analyse website structure and development tools</p> <p>2 Begin site construction</p> <p>3 Complete and validate website construction and content</p>	<p>Task 2 <i>Website development</i></p> <p>Students are to build a basic website from concept to completion that meets the client’s needs and adheres to processes involved in the development of a quality product.</p> <p>Depending on the individual student they will be assigned to either a real external client or be provided with a simulated client scenario for the task.</p> <p>Students will hand in a portfolio of evidence including:</p> <ul style="list-style-type: none"> • analysis of websites for like products/organisations • outline of industry standards that will impact on the development of the site • design specifications • steps in the development of the site <ul style="list-style-type: none"> - site planning and preparation - content development and validation - creative development - technical requirements at development and host level - site testing and delivery • storyboards and prototypes • how the site caters for diverse user groups • selection of development software and IT tools • use of templates, cascading style sheets (CSS) or other means for consistency • statistical data measuring website performance • evaluation and revision of the site • third party evaluation • liaison and negotiation with the client (for the real external client scenario).
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Unit / Element of competency / Performance criteria	Content	Possible learning experiences / activities
<p><i>ICAB4169A Use development software and IT tools to build a basic website</i></p> <p>1 Select and analyse website structure and development tools</p> <p>1.1 Analyse business specification and select appropriate software</p>	<p>Effective websites</p> <p>An awareness of the characteristics of effective websites.</p>	<p>Conduct an analysis of a range of websites to identify their:</p> <ul style="list-style-type: none"> • purpose • good and bad features • elements of design <p>Create a list of the characteristics of effective and ineffective websites.</p>
<p><i>ICAB4169A Use development software and IT tools to build a basic website</i></p> <p>1 Select and analyse website structure and development tools</p> <p>1.1 Analyse business specification and select appropriate software</p>	<p>Specifications and principles of design</p> <p>A basic knowledge of:</p> <ul style="list-style-type: none"> • basic website specifications • basic design principles • principles of web design. 	<p>Discuss the concepts of website specifications, design principles and principles of web design.</p> <p>Students visit the ‘Web Style Guide’ website and review Chapter 1 – Process. www.webstyleguide.com</p> <p>Handout on design principles</p>
<p><i>ICAB4169A Use development software and IT tools to build a basic website</i></p> <p>1 Select and analyse website structure and development tools</p> <p>1.4 Review design documentation and integrate design work with site structure and navigation, in accordance with web development standards</p>	<p>Web development standards</p> <p>A basic knowledge of standards in relation to building a basic website:</p> <ul style="list-style-type: none"> • industry <ul style="list-style-type: none"> - standard generalised mark-up language (SGML) - Web Content Accessibility Guidelines 1.0 (WCAG) - Authoring Tool Accessibility Guidelines 1.0 (ATAG). 	<p>Discuss what is a standard and the purpose of common standards.</p> <p>Visit the following websites and identify the key features and use of each of the following industry standards:</p> <ul style="list-style-type: none"> • SGML <ul style="list-style-type: none"> - http://en.wikipedia.org/wiki/SGML - www.w3.org/TR/html4/intro/sgmltut.html#h-3.1 • WCAG <ul style="list-style-type: none"> - www.w3.org/TR/WAI-WEBCONTENT/

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	<p>An awareness of:</p> <ul style="list-style-type: none"> • the benefits of standards • the result if standards are not used. 	<ul style="list-style-type: none"> - www.nils.org.au/ais/web/resources/toolbar/WCAG_c_hecklist.html • ATAG - http://www.w3.org/TR/ATAG20/ <p>Class discussion.</p> <p>Class debate – standards are essential in the ICT industry.</p>
<p><i>ICAB4169A Use development software and IT tools to build a basic website</i></p> <p>1 Select and analyse website structure and development tools</p> <p>1.1 Analyse business specification and select appropriate software</p>	<p>Diverse user groups</p> <p>An understanding of the following in relation to building a website for diverse user groups:</p> <ul style="list-style-type: none"> • best practice communication • accessibility • equity principles. 	<p>Brainstorm the range of diverse users that may access a website and identify their particular needs.</p> <p>Discuss the considerations for website design that will meet the needs of these diverse groups.</p> <p>Review the <i>Easy English writing style guide</i> and make a summary of the key points to consider when preparing written information for diverse user groups</p> <ul style="list-style-type: none"> • http://www.scopevic.org.au/Easy%20English%20writin%20style%20guide%20August%202005.pdf <p>Link to Task 1.</p>
<p><i>ICAB4169A Use development software and IT tools to build a basic website</i></p> <p>1 Select and analyse website structure and development tools</p> <p>1.1 Analyse business specification and select appropriate software</p>	<p>Analysis and evaluation of websites</p> <p>Analysis and evaluation of website development and effectiveness:</p> <ul style="list-style-type: none"> • site structure • complexity • performance • ease of access and navigation • content. 	<p>Access a range of websites created for different purposes. Analyse and evaluate their development and effectiveness.</p> <p>Review the following website about evaluating information on the web to identify points to look out for:</p> <ul style="list-style-type: none"> • http://www.lib.flinders.edu.au/services/infolit/web/eval.html

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		<p>Use the tools available at the following website to review a number of the sites evaluated in the previous activity:</p> <ul style="list-style-type: none"> • www.websiteoptimization.com/services/analyze/
<p><i>ICAB4169A Use development software and IT tools to build a basic website</i></p> <p>1 Select and analyse website structure and development tools</p> <p>1.1 Analyse business specification and select appropriate software</p>	<p>Building a basic website</p> <p>An understanding of the following concepts:</p> <ul style="list-style-type: none"> • business specifications • technical requirements • design specifications. <p>Steps involved in the development/building of a basic website:</p> <ul style="list-style-type: none"> • site planning • site preparation • content development • creative development • technical development • site testing • site delivery • site maintenance. 	<p>Create a mind map identifying the elements of business specifications, technical requirements and design specifications.</p> <p>Discuss the purpose of each of these and the benefit to the client and the developer.</p> <p>Discuss the elements and terms of internet development agreements and software development agreements.</p> <p>Review the examples of standard internet development agreements and software development agreements and identify their key features at the following websites:</p> <ul style="list-style-type: none"> • www.datalink.com.au/company/legal/agreement • http://www.infodiv.unimelb.edu.au/telars/mltc/pdf_files/SoftwareDevelAgree.pdf <p>Discussion of the processes contained in each step in the development of a basic website and the consequences of poorly completing one or more of the steps.</p> <p>Investigate a number of web developer's websites to identify the variety of tools used in the development/building of a website.</p> <p>Discuss the purpose of a range of software tools required in the development of a website.</p>

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<p><i>ICAB4169A Use development software and IT tools to build a basic website</i></p> <p>1 Select and analyse website structure and development tools</p> <p>1.1 Analyse business specification and select appropriate software</p>	<p>Plan the website project</p> <p>Site planning and preparation.</p> <p>Business specification, technical requirements and design specifications in order to produce an effective website.</p>	<p><i>The remainder of this program follows a project-based approach.</i></p> <p><i>Each of the learning experiences and practical activities directly relate to Task 2, and would be undertaken as a part of this task.</i></p> <p>Investigate and research the individual, company/ organisation or group for whom the website is being developed.</p> <p>Confirmation of the main purpose of the website being developed.</p> <p>Determine business specifications, technical requirements and design specifications.</p>
<p><i>ICAB4169A Use development software and IT tools to build a basic website</i></p> <p>2 Begin site construction</p> <p>2.1 Take action to ensure user input during website construction</p> <p>2.2 Validate existing information and basic content when incorporating data on website</p>	<p>Content development</p> <p>Points to consider when writing the content for the website:</p> <ul style="list-style-type: none"> • active voice • correct spelling, grammar and punctuation • concise information • simple words, sentences and paragraphs • defined technical terms and jargon • positive language • supplementing with diagrams and pictures. <p>Methods/techniques for validating information and content.</p>	<p>Identify the content that is to be included in the website and logically group the content under headings and subheadings.</p> <p>Review the information on the following websites about web writing and identify the key considerations when writing for the web:</p> <ul style="list-style-type: none"> • www.monash.edu.au/staff/web/content/writing.html • www.clickz.com/experts/archives/design/onl_edit/article.php/833861 <p>Draft text for the content of the website. Edit the text giving consideration to the points listed.</p> <p>Discuss the importance of content validation when constructing a website.</p> <p>Identify methods/techniques for validating information</p>

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	<p>Knowledge of where material/content for the website was sourced to enable:</p> <ul style="list-style-type: none"> • accuracy checks • copyright approval for inclusion in the site. 	<p>and content considering the following:</p> <ul style="list-style-type: none"> • responsibility of client providing content • responsibility of web developer in validating content, both text and images, and sourcing content that is original or free of copyright restrictions. <p>Discussion of the need to source all website content.</p> <p>Research the process to be followed to obtain copyright approval and the consequences of a breach of copyright.</p>
<p><i>ICAB4169A Use development software and IT tools to build a basic website</i></p> <p>1 Select and analyse website structure and development tools</p> <p>1.3 Identify site structure and navigation flow and demonstrate understanding of functionality</p>	<p>Information architecture and creative development</p> <p>Planning of web page(s):</p> <ul style="list-style-type: none"> • location of text and images • role of external and internal links • links within a page, image links and hotspots • navigation options • relationships between pages (where applicable). 	<p>Identify the elements of design.</p> <p>In small groups research in detail one element and present findings to the class.</p> <p>Discuss the term ‘functionality’ in relation to building a basic website.</p> <p>Identify the importance of the use of templates and cascading style sheets (CSS) in the development of consistency across the website.</p> <p>Create storyboards for a number of alternative layouts displaying textual and graphical content for the website being developed considering user-centred and client-centred design, and taking into account:</p> <ul style="list-style-type: none"> • site purpose • web resources • file naming protocols. <p>Identify the navigational elements of each alternative layout.</p>

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	Development of site structure and navigation flow to: <ul style="list-style-type: none"> • meet business and technical requirements • ensure ease of access and navigation for the user. 	Create a tree diagram indicating the site structure and navigation flow. Students identify technical requirements at: <ul style="list-style-type: none"> • the website development level • the host level.
<p><i>ICAB4169A Use development software and IT tools to build a basic website</i></p> <p>1 Select and analyse website structure and development tools</p> <p>1.1 Analyse business specification and select appropriate software</p> <p>1.2 Identify technical needs for the website and select appropriate software tools</p>	<p>Technical development</p> <p>General features, benefits and limitations of a range of development software and software tools:</p> <ul style="list-style-type: none"> • Word pad • Notepad • Dreamweaver • Flash • file transfer protocol (FTP) programs • FrontPage. <p>Points to consider when selecting development software and software tools:</p> <ul style="list-style-type: none"> • user needs • appropriateness to task • usability • budget • time constraints. 	<p>In small groups develop a multimedia presentation on one of the development software or software tools listed, identifying:</p> <ul style="list-style-type: none"> • general features • benefits • limitations • cost • ease of use. <p>Discuss the influence of a range of factors on the selection of development software and software tools.</p> <p>Identify three common industry-standard tools used for each of the following and discuss their cost, features, similarities and differences:</p> <ul style="list-style-type: none"> • HTML code production • graphics manipulation • e-commerce. <p>Case studies – showing the variety of tools used to solve particular cases.</p>
<p><i>ICAB4169A Use development software and IT tools to build a basic website</i></p> <p>1 Select and analyse website structure and development tools</p>	<p>Site construction</p> <p>Selection and working knowledge of development software appropriate to build the basic website.</p>	<p>Construct a number of single-page sample sites using:</p> <ul style="list-style-type: none"> • website development software and tools • HTML code.

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<p>1.1 Analyse business specification and select appropriate software</p> <p>1.2 Identify technical needs for the website and select appropriate software tools</p> <p>1.4 Review design documentation and integrate design work with site structure and navigation, in accordance with web development standards</p> <p>2 Begin site construction</p> <p>2.1 Take action to ensure user input during website construction</p> <p>2.3 Apply consistent design specifications to all aspects of the website</p>	<p>Development and validation of hypertext markup language (HTML) and HTML code.</p> <p>Selection and working knowledge of software tools appropriate to build the basic website.</p> <p>Reading and interpretation of design documentation, including specifications and guidelines.</p> <p>Use selected development software and software tools to build the website consistent with:</p> <ul style="list-style-type: none"> • the design specifications • the technical requirements • the client’s expectations • company/organisation standards • project-specific standards. <p>An awareness of the importance of regular user input and client review throughout the website development process to minimise the need for reworking of the website.</p>	<p>Evaluate each of the development software and software tools used.</p> <p>Select software and tools appropriate for the construction of the students website which meet the design specifications determined in consultation with the client.</p> <p>Produce a report justifying the selection of specific tools.</p> <p>Case studies – students access the following websites to identify the design specifications and guidelines:</p> <ul style="list-style-type: none"> • www.newsgator.com/casestudies/Dykema_Case_Study.pdf • www.archimuse.com/mw2001/papers/bogomazova/bogomazova.html <p>Construction of models (prototypes) of student’s websites which meet identified requirements and standards.</p> <p>Class discussion.</p>
<p><i>ICAB4169A Use development software and IT tools to build a basic website</i></p> <p>2 Begin site construction</p> <p>2.4 Gather feedback from user on web design, content, accessibility and structure, using appropriate feedback mechanism</p>	<p>Client and user feedback</p> <p>Recognition of the value of user/client evaluation/feedback to the company/organisation.</p>	<p>Discuss the value of constant feedback for:</p> <ul style="list-style-type: none"> • meeting standards and specifications • keeping design and development on track • keeping costs to budget • identifying changes in requirements or scope, assessing

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	<p>Types of feedback:</p> <ul style="list-style-type: none"> • positive • negative • constructive. <p>A range of methods to obtain client feedback:</p> <ul style="list-style-type: none"> • questionnaire <ul style="list-style-type: none"> - paper - electronic • interview • focus group. <p>Points to consider when designing feedback mechanism:</p> <ul style="list-style-type: none"> • use of language <ul style="list-style-type: none"> - targeted to user - plain English - minimise technical/industry jargon • questioning technique <ul style="list-style-type: none"> - open, closed and/or reflective - avoid bias/leading questions • opportunity for ‘free-response’. <p>A range of methods to distribute/enable feedback/evaluation mechanism to the client:</p> <ul style="list-style-type: none"> • written <ul style="list-style-type: none"> - mail - electronic mail - internet/intranet - facsimile • verbal <ul style="list-style-type: none"> - telephone - one-on-one - meeting. 	<p>these against the original project plan</p> <ul style="list-style-type: none"> • ensuring project is meeting user/client expectations. <p>Discuss the impact of different types of feedback in the development of a website.</p> <p>Brainstorm tools that may be used to collect feedback.</p> <p>Evaluate the feedback tools identified with respect to the quality of feedback that would be collected.</p> <p>Discuss the benefits and limitations of different methods of feedback for different development projects.</p> <p>Review a range of sample feedback tools examining their use of:</p> <ul style="list-style-type: none"> • language • questioning techniques • free-response items. <p>Identify the characteristics of high quality and poorer quality feedback tools.</p> <p>Discuss the suitability of a range of methods to enable client feedback.</p>

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	<p>Points to be reviewed:</p> <ul style="list-style-type: none"> • standards • style • design • accessibility • structure • consistency • content <ul style="list-style-type: none"> - clarity/readability - plain English - explanation of technical terms/jargon - accuracy - spelling, grammar and punctuation • usability/ease of navigation • completeness. <p>Proofreading and review of website content by:</p> <ul style="list-style-type: none"> • appropriate company/organisation person(s): <ul style="list-style-type: none"> - team leader/supervisor - editor - technical expert - trainer - experienced colleague • client • representatives of the user/target audience. <p>How to interpret feedback in order to improve the website.</p> <p>Company/organisation practices for:</p> <ul style="list-style-type: none"> • version control • tracking processes. 	<p>Develop and undertake an evaluation process for the website solutions reviewing the points listed. The evaluation should include:</p> <ul style="list-style-type: none"> • self-evaluation • peer evaluation • client evaluation. <p>Students arrange for their website content to be reviewed by individual or group stakeholders.</p> <p>Write a report on the feedback from the review and the steps that will be taken to respond to the feedback.</p> <p>Students maintain documentation of version control and tracking in the development of the website.</p>
<p><i>ICAB4169A Use development software and IT tools to build a basic website</i></p>	<p>Site testing</p> <p>Auditing the website against business and technical</p>	<p>Students undertake testing of their website for:</p>

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<p>3 Complete and validate website construction and content</p> <p>3.1 Undertake an evaluation of the website against technical requirements and design specification</p> <p>3.2 Test each function and process of the website</p> <p>3.3 Conduct navigation tests and HTML compliance with website standards</p> <p>3.4 Stress test the website to meet design criteria and user load</p> <p>3.5 Record testing results to ensure website meets user requirements</p>	<p>requirements and design specifications.</p> <p>Debugging and error handling techniques.</p> <p>An understanding of how to troubleshoot basic web links and HTML code errors.</p> <p>Stress test the website to meet design criteria and user load.</p> <p>Company/organisation standards and workplace documentation for recording test results.</p>	<ul style="list-style-type: none"> • structural quality – links and images work • content – accuracy and consistency of page content • response time and latency – website server responds to browser request within performance specifications • performance – Browser->Web->Website->Web->Browser connection is reliable irrespective of load or usage. <p>Develop a report on the impact of website quality on satisfying client needs.</p> <p>Students test each function and process of the website.</p> <p>Conduct website validation:</p> <ul style="list-style-type: none"> • structural – matching links and anchors • gross statistics – page statistics (eg line, word, byte-count, checksum) • selected images/fragments – images match during subsequent renditions. <p>Students conduct navigation tests and HTML compliance with website standards.</p> <p>Students stress test their website using a software tool such as:</p> <ul style="list-style-type: none"> • www.loadtestingtool.com/download.shtml • www.soft.com/eValid/ <p>Review site testing and document test results. Report on the following:</p> <ul style="list-style-type: none"> • verifying files are organised correctly • checking basic elements – spacing, tables, graphics, font size, type and colours, backgrounds, etc. • document structure • image links • meta tags • table analysis

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		<ul style="list-style-type: none"> • browser support • HTML code analysis/optimisation • font support.
<p><i>ICAB4169A Use development software and IT tools to build a basic website</i></p> <p>3 Complete and validate website construction and content</p> <p>3.6 Obtain sign-off/approval of user</p>	<p>Site delivery and maintenance</p> <p>Company/organisation practices for:</p> <ul style="list-style-type: none"> • user approval • client sign-off • release of website ('live') • maintenance/review of website. 	<p>Identify company policies for signing-off projects.</p> <p>Discuss processes used to determine that the site architecture, decision logic and functionality:</p> <ul style="list-style-type: none"> • meet client/business requirements – features, functionality, content • meet technical requirements – display and function reliably, integration with servers and legacy systems • meet user expectations – users intuitively and reliably complete tasks. <p>Visit the Australian Domain Name Administrator (ADNA) website and review domain name registration and hosting options for a business/organisation</p> <ul style="list-style-type: none"> • www.ada.org.au <p>Students upload website to a host using a free hosting site.</p>