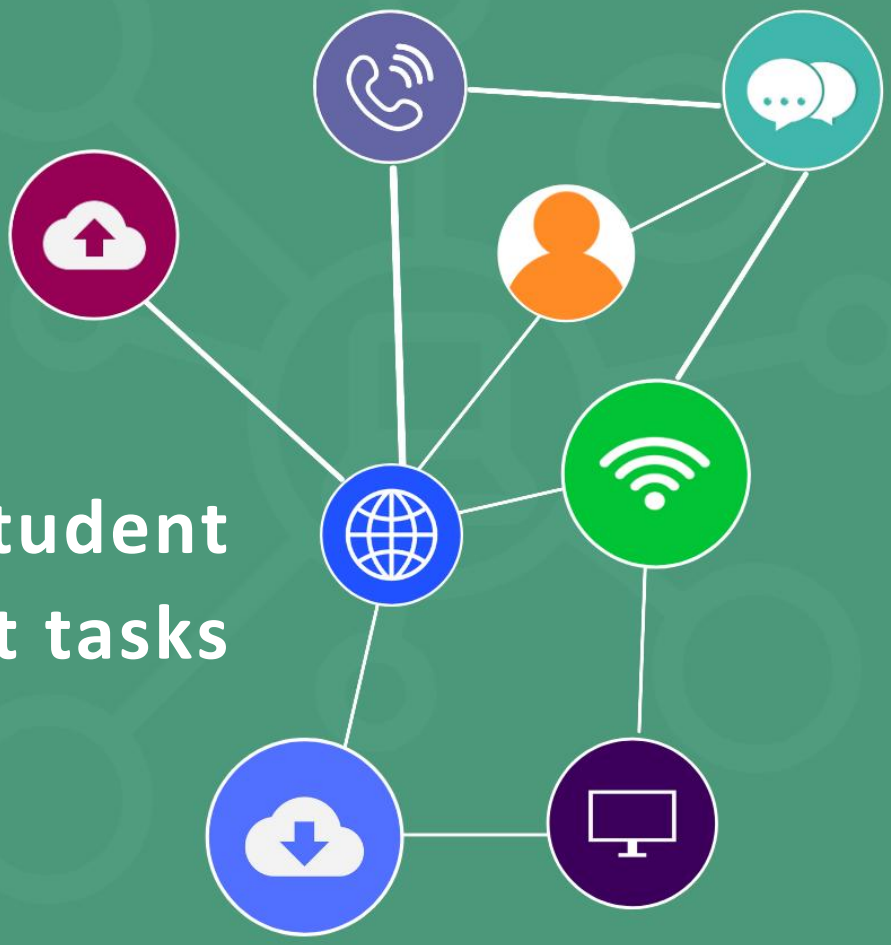

student assessment tasks

ICTWEB513

Build dynamic websites

First published 2020

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IT Works is a series of training and assessment resources developed for qualifications within the Information and Communications Technology Training Package.

CONTENTS

Introduction

The assessment tasks for *ICTWEB513 Build dynamic websites* are outlined in the assessment plan below. These tasks have been designed to help you demonstrate the skills and knowledge that you have learnt during your course.

Please ensure that you read the instructions provided with these tasks carefully. You should also follow the advice provided in the *IT Works Student User Guide*. The Student User Guide provides important information for you relating to completing assessment successfully.

Assessment for this unit

ICTWEB513 Build dynamic websites describes the skills and knowledge required to analyse and design websites to meet technical requirements.

For you to be assessed as competent, you must successfully complete two assessment tasks:

- Assessment Task 1: Knowledge questions – You must answer all questions correctly.
- Assessment Task 2: Project – You must work through a range of activities and complete a project portfolio.

Assessment Task 1: Knowledge Questions

Information for students

Knowledge questions are designed to help you demonstrate the knowledge which you have acquired during the learning phase of this unit. Ensure that you:

- review the advice to students regarding answering knowledge questions in the *IT Works Student User Guide*
- comply with the due date for assessment which your assessor will provide
- adhere with your RTO's submission guidelines
- answer all questions completely and correctly
- submit work which is original and, where necessary, properly referenced
- submit a completed cover sheet with your work
- avoid sharing your answers with other students.

Assessment information

Information about how you should complete this assessment can be found in Appendix A of the *IT Works Student User Guide*. Refer to the appendix for information on:

- where this task should be completed
- the maximum time allowed for completing this assessment task
- whether or not this task is open-book.

Note: You must complete and submit an assessment cover sheet with your work. A template is provided in Appendix C of the Student User Guide. However, if your RTO has provided you with an assessment cover sheet, please ensure that you use that.

Questions

Provide answers to all of the questions below:

1. List and describe three principles of good website design.

Audience	Great web design is user-friendly and created to attract the target audience. This should shape every visual, structural and content decision. Therefore, a web page is designed to meet the needs and preferences of users.
Technology	A website that gives you a bad experience on mobile devices will reduce a large number of potential users, so a good web page must not ignore potential other computer users, which requires technical support. A modern website design must have a good page speed. If the response is slow, it can't attract customers. It needs a good technology to design excellent web pages. If a website is poorly constructed, no matter how good the visual design is, it can't retain users.
The user experience	As a user, your experience of the website should be simple and clear. You should know where you can get the information you want quickly. You can quickly complete a process, which requires not only the visual experience of the page but also the operation mode. Only by achieving a satisfactory user experience can you make a good website.

2. List and describe three factors that should be taken into consideration when analysing a website to determine its effectiveness.

What is the positioning of the website	When determining the effectiveness of the website, we need to be clear about what profit the website makes and what target groups the website aims at. The target group of the website is the group that we must know in order to avoid some troubles in the future. Although website profitability is very important, it's more important to

	determine the direction of website operation and the customers it faces.
Whether the website can run successfully	The most direct embodiment of the effectiveness of a website is whether the website can run successfully on the port of the majority of users. If it can't run, the effectiveness of the website is obviously insufficient, and it needs to be improved accordingly.
Whether the function can meet	When designing web pages, we often design many functions to meet the needs of customers. However, whether these improved functions can run successfully in web pages becomes the most important issue, which will determine whether our web pages can meet the market demand.

3. Define the term programming control structure.

The programming structure refers to the data transmission mode under the control of the program. Programming structure is a series of actions executed in a certain order to solve problems. Theory and practice show that no matter how complex the algorithm is, it can be constructed by three basic control structures: sequence, selection and iteration. Each building has only one entrance and exit. The multilevel nested program composed of these three basic structures is called the programming control structure.

4. List three types of programming control structures.

(1) Decompose the planned process in order to determine the execution order of each part.

(2) Decompose the process in a selected way to determine the execution conditions of a certain part.

(3) Circulate the decomposition process to determine the starting and ending conditions of a certain part of repetition.

5. Define the term programming design structure and steps that should be followed for programming design structure.

(1) Structured programming is a programming paradigm that helps to create programs with readable code and reusable components. All modern programming languages support structured programming, but the supporting mechanisms are different.

(2) Steps:

1. Analyze the problem

2. Determine the algorithm to be used.

3. Draw a flow chart

4. Use algorithms to write programs.

5. Run and debug

6. Detect errors in the program.

7. If there are no errors, end the programming. If there are errors, go to step 8.

8. Analyze and check whether the error exists in the algorithm or the program.

9. Repeat steps 5 to 8.

10. Until the program is completed and there are no errors in the program.

6. Complete the following table.

Web programming concept	Explanation of the concept
a. Authentication	A. Website authentication refers to the authentication of the website identity and related information of Internet websites by a third-party authority. If users need to log in, they must use a username, which can reduce the risk of the website and effectively guarantee the privacy of users.

b. Web Security	B. Network security means that the hardware, software and data in the network system are protected from being damaged, changed or leaked by accident or malicious reasons, so as to ensure the system can run continuously, reliably and normally, and the network service is not interrupted. Network security should be kept secret to ensure that users' privacy will not be revealed in the process of information transmission and storage.
c. Hypertext transfer protocol (HTTP)	C.HTTP is a communication protocol based on "TCP/IP", which is a simple "request-response" protocol. It can specify the information sent by the client, and can accurately get what message is sent and what response it will get.
d. Session Management	D. Session management in human-computer interaction. Session management is the process of keeping the interaction of users' whole session activities and tracking by computer system.
e. Stateless programming	E. Statelessness means that for every request of the requester, the receiver will regard this request as the first request. Stateless doesn't mean that the receiver won't save any data of the requester, it just doesn't save data related to the receiver's possible next request. Therefore, statelessness requires the requester to provide all the data related to the request at one time before it can run.

7. Explain the term client-side scripting and how it relates to dynamic website design.

A script is a small program embedded in a web page. It is processed in the client browser instead of the web server.

Scripts executed on the user's computer system are called clients. It is embedded in an HTML document, or it can be stored in an external separate file.

Scripts are designed to respond to mouse or keyboard operations and change the interface behavior of dynamic websites. It is the basis of dynamic website design and constitutes a dynamic webpage.

8. Explain the use HTML in dynamic website development.

Dynamic HTML describes the development of dynamic web pages. Dynamic HTML can create dynamic web pages together with HTML, JavaScript, XML and CSS. The design of dynamic web pages requires client script to respond to the operations in the web pages, and the client script is used to change the web pages. The design of web pages basically depends on html language, and the design content of dynamic web pages is also generated by HTML.

9. Explain the use of cascading style sheets in dynamic website development.

Dynamic websites can only operate on the basis of html and css, and the layering and style of css can help dynamic websites run and make them more diverse. Css can also better control the layout of web pages, and use CSS to design the display effect of dynamic web pages.

10. Explain the purpose of producing a hierarchy of a dynamic website.

Website hierarchy can be defined as the structure of website pages. You can easily see that it is reflected in the way each part of the website is linked to each other. The website hierarchy is designed to help visitors navigate to different parts of the website seamlessly. It can help build an interactive site and maximize the chance of interacting with users.

11. Explain the use of user interface prototyping in dynamic website design.

Dynamic websites are used for more complex websites, or websites whose contents need to be updated regularly. The code used to generate the website will determine whether it is dynamic or static. Dynamic websites with content management systems are often used to allow users to interact with websites, such as using shopping carts or using input forms. The dynamic function of Web page determines whether you use client-side script or server-side script.

12. List three typical user interface requirements for dynamic website design.

1. Understand user needs and pay attention to content layout.

When designing a dynamic website, we need to make clear the content of the website. Different types of web pages have different themes and styles. When we design the user interface, we should be guided by the user needs and categories of the website. All design work revolves around this premise and cannot be divorced from the theme.

2. Simple user interface design

The user interface design must be simple enough. Designers should attract users to stay on your website for a long time. They should not make the user interface complicated, so that users can't meet their needs quickly. The text content should be as simple as possible, and there should be no too many words.

3. Clear navigation and easy to read titles

When designing a page, make a hierarchical navigation bar, try to let users know where they are, and try to let users find the required information in a short time. The content theme of a website should be accessible to users directly. For example, we make pages about courses, so our various courses need to be very clear on the pages, so that users can't find them in time.

13. Explain the concept of website architecture.

Website architecture is generally considered as the result of customer demand analysis, and website architecture is the blueprint for planning website structure and organization. Accurately locate the target group of the website, set the overall structure of the website, plan and design the website columns and the content of each webpage, and formulate the website development process and sequence according to the basic structure of the website. The design of the website architecture determines how users and search engines find, link and interact with each page of the website. A strong architecture should ensure that a website is easy for users to navigate and search for search engines and other content.

14. Explain considerations relating to data storage when building a dynamic website.

1. When we build a dynamic website, data storage needs to pay attention to the security of the database. Good security can ensure that the data of the website will not be leaked, ensure the safe operation of the website, protect users' privacy from illegal theft, and encourage users to be more willing to use our website.

2. When storing data, we need to make a data index. A reasonable index can efficiently enable users to obtain the required information, and can also significantly improve the performance of the whole database system.

3. The storage capacity of the database must be large enough to ensure that our webpage can store users' information for a long time, and it can also ensure that enough data can be stored to prevent the database from being overloaded.

15. Describe the testing process for a dynamic website.

1. Functional test: Test the dynamic content of the website and check whether the code works properly, and check whether the hyperlink can be clicked normally. You also need to verify the fields and forms.

2. Usability test: Check whether the content is simple and easy to understand, whether the interactive part can be clicked, and whether the ui interface is concise.

3. Compatibility test: Test dynamic websites on different browsers and display web pages on different devices to ensure that the web pages are compatible at all ports.

4. Performance test: Test the dynamic effect of the current webpage and the maximum user traffic that can be accommodated.

5. Security test: Detect whether there are undiscovered vulnerabilities in the page, and scan the page and detect viruses at the same time.

16. List two methods that can be used for debugging a dynamic website.

1. By running the code in the machine, first check the code with editing software for errors. If errors are found, modify the wrong places and run it again. After the initial test in the editing software, you can conduct the second test in the browser, and then check how the webpage works. If it doesn't meet the expected results, then we need to modify the code and try again until the expected results are achieved.

2. Run the code in common browsers, such as Google, edge and other webpages, to see if the dynamic effect of the website still exists. If it doesn't, you need to further modify and debug the code.

17. Document one cyber security procedure and one protocol that should be followed to ensure a secure dynamic website.

Cyber security procedure/protocol	Description
Automatic Updates and fixes	Updates to applications are not just changes to the operating system. The software company uses "automatic update" as bug fix and security patch to ensure that the security is up to date and fix any bugs or vulnerabilities as soon as possible. By enabling this feature, devices and applications will be automatically updated to ensure network security.

Firewall protocol	Firewalls are deployed at the network boundary, serving as a bridge between the internal network and the external network. It protects the data entering and leaving the network boundary, prevents malicious intrusion and malicious code spreading, and ensures the security of internal network data.

Assessment Task 1: Checklist

Student's name:			
Did the student provide a sufficient and clear answer that addresses the suggested answer for the following?	Completed successfully?		Comments
	Yes	No	
Question 1			
Question 2			
Question 3			
Question 4			
Question 5			
Question 6a			
Question 6b			
Question 6c			
Question 6d			
Question 6e			
Question 7			
Question 8			
Question 9			
Question 10			
Question 11			
Question 12			
Question 13			
Question 14			
Question 15			

Question 16			
Question 17			
Task outcome:	☐ Satisfactory		☐ Not satisfactory
Assessor signature:			
Assessor name:			
Date:			

Assessment Task 2: Project Portfolio

Information for students

In this task, you are required to demonstrate your skills and knowledge by working through a number of activities and completing and submitting a project portfolio.

You will need access to:

- a suitable place to complete activities that replicates a business environment including a meeting space and computer and internet access
- your learning resources and other information for reference
- a development environment including server, database server, hardware and software required for building dynamic websites
- libraries and frameworks required for building dynamic websites
- range of web browsers and devices
- website testing and debugging tools
- ICTWEB513 Simulation Pack, including client requirements
- *Project Portfolio* template.

Ensure that you:

- review the advice to students regarding responding to written tasks in the *IT Works Student User Guide*
- comply with the due date for assessment which your assessor will provide
- adhere with your RTO's submission guidelines
- answer all questions completely and correctly
- submit work which is original and, where necessary, properly referenced
- submit a completed cover sheet with your work
- avoid sharing your answers with other students.

i	**Assessment information** Information about how you should complete this assessment can be found in Appendix A of the *IT Works Student User Guide*. Refer to the appendix for information on: • where this task should be completed • how your assessment should be submitted. *Note*: You must complete and submit an assessment cover sheet with your work. A template is provided in Appendix B of the Student User Guide. However, if your RTO has provided you with an assessment cover sheet, please ensure that you use that.

Activities

Complete the following activities:

1. Carefully read the following:

This project requires you to build a dynamic website according to requirements.

This project is to be based on the requirements for a dynamic website ICTWEB513 Simulation Pack. Speak to your assessor to get approval if you want to base this on another business or client requirements for a dynamic website.

Vocational education and training is all about gaining and developing practical skills that are industry relevant and that can help you to succeed in your chosen career. For this reason, basing your project on real requirements will mean that you are applying your knowledge and skills in a relevant, practical and meaningful way!

You will be collecting evidence for this unit in a Project Portfolio. The steps you need to take are outlined below. Before you begin, complete page 4 of your Project Portfolio.

2. Preparation

Make sure you have decided which website you will be creating for this assessment.

Read through the Simulation Pack that includes standards and procedures that you must follow for dynamic website development.

Complete *Page 4* of your Project Portfolio for this unit.

Read through the requirements of *Section 1, 2 and 3 of your Project Portfolio* which include detailed guidance relevant to all the assessment activities.

3. Dynamic website preparation

You are now to complete Section 1 of your Project Portfolio by:

- Identifying legislation, standards and procedures applicable to dynamic web site development.
- Describing the website you are going to build, including its purpose, expectations for the website and the required functionality.
- Based on the business' requirements, analyse and then describe user interface design requirements, including user needs, design principles and operating systems
- Planning the dynamic web site by developing and documenting a hierarchy for the website (including navigation) to show how it will be built.

- Developing and documenting a prototype for the user interface.
- Determining and documenting the dynamic website architectural requirements.
- Designing the data storage requirements as per the requirements or the website.

Complete Section 1 of your Project Portfolio.

Submit your Portfolio to your assessor as you will need to confirm with your assessor prior to proceeding to the building your website that your design for the content is logical and accessible to the target user and meets business requirements

4. Website development

You are now to complete Section 2 of your Project Portfolio by:

- Downloading the software you will use to create the HTML code for the website. Your trainer/assessor will advise the software which you are to use. For example, this may include software such as Notepad ++ or Visual Studio Code or Atom.
- Installing this software and then using it to write the HTML code.
- Developing all of the agreed components for the website, including styling.
- Testing each component to make sure it is working.
- Integrating components to produce the final dynamic website.

Complete Section 2 of your Project Portfolio.

Submit your Portfolio to your assessor.

5. Test and finalise dynamic website.

The final part of this assessment requires you to test and finalise your dynamic website. You will be required to:

- Check your completed website to make sure it addresses the business' requirements and make changes required.
- Check that your completed website is secure and bug free
- Confirm that the dynamic website works on least two:
  - different types of browsers
  - different types of devices
- Provide your dynamic website to your assessor for feedback and incorporate their feedback.

Complete Section 3 of your Project Portfolio.

6. Submit your completed Project Portfolio

Make sure you have completed all sections of your Project Portfolio, answered all questions, provided enough detail as indicated and proofread for spelling and grammar as necessary.

Submit to your assessor for marking.

Assessment Task 2: Checklist

Student's name:			
Did the student:	Completed successfully?		Comments
	Yes	No	
Identify legislation and standards applicable to dynamic website development?			
Follow procedures applicable to dynamic website development?			
Determine and document the purpose, expectations and functionality of the dynamic website?			
Based on the business' requirements for the website, analyse and then describe user interface design requirements, including user needs, design principles and operating systems?			
Plan the dynamic web site by developing a hierarchy for the website (including navigation) to show how it will be built.?			
Develop a prototype for the user interface for the dynamic website?			
Determine and document the architectural requirements for the dynamic website?			
Design the data storage requirements for the dynamic website according to the business' requirements for the website?			
Confirm with you (the assessor) that their content is logical and accessible to the target user according to the business' requirements for the website?			

Create the software components of website according to the business' requirements for the website and using the downloaded software to create the code?			
Test each required component of the dynamic website following procedures?			
Integrate all components to produce they dynamic website?			
Test the website to make sure it meets the specified business requirements and make required changes?			
Complete checks to make sure the website is secure and bug free and following procedures?			
Test website functionality on two different browsers and two different devices and make changes as required?			
Obtain feedback from you (the assessor) and update the website based on feedback?			
Complete Portfolio in full to demonstrate completion and documentation of website design structure?			

Task outcome:	☐ Satisfactory ☐ Not satisfactory
Assessor signature:	
Assessor name:	
Date:	

Final Results Record

Student name:	
Assessor name:	
Date	

Final assessment results

Task	Type	Result		
		Satisfactory	Unsatisfactory	Did not submit
Assessment Task 1	Knowledge questions	S	U	DNS
Assessment Task 2	Project Portfolio	S	U	DNS
Overall unit results		C	NYC	

Feedback

☐ My performance in this unit has been discussed and explained to me.

☐ I would like to appeal this assessment decision.

Student signature: _____ Date: _____

☐ I hereby certify that this student has been assessed by me and that the assessment has been carried out according to the required assessment procedures.

Assessor signature: _____ _____Date: