*NOTES ABOUT THE USE OF THIS FORM:*

* *This form is designed to be completed on a computer. Cells in the table below will expand to accommodate any amount of text … but we suggest that you keep the narrative as succinct as possible!*
* *Please keep the use of formatting to a minimum. Importing formatted text onto a virtual learning platform presents challenges!*
* *This form assumes that the “unit of learning” is a module. The module, in turn, would be included in a “course” (which is not referred to here). Each module will have a series of components which have been called “units” – they may be called something different in your design (like “weeks”, or “sections”) and you are free to change the terminology.*
* *In the section about the authors of and contributors to the course, we have provided space for 5 co-authors (or co-contributors). If there were more than six people on the team, please add additional rows to the table.*
* *Please ensure that you use student-friendly language. So the intended learning outcomes will be framed using the word “you”, and not “the student”. (This may be at odds with what you understand to be “academic” language. The aim, in online and blended learning, is to use language that includes the student to the greatest extent possible.)*
* *Please note that module-level outcomes should be “overarching” outcomes onto which the unit-level outcomes map. You should have a few (maybe 4) module-level outcomes, and a very few (two or three at the most) unit-level outcomes for each unit.*
* *The unit-level template should be copied so that there is a copy of the template for EACH Week. Thus, if there are 15 units/weeks/sections in a module, you will copy the template 14 times and complete each copy for one Week.*
* *In the unit-level template, there is a space for a detailed description of student and teacher engagement with the unit. Here we would expect to see a “blow-by-blow” account of how the unit “hangs together”. What happens first? And then? What resources would students need to access for each part of the unit’s work? Where would they find these? Where is collaboration expected to happen? How is it scaffolded? And so on? What happens in class? What happens online? How do these elements build on each other? How long should students spend on each part of the unit?*

*This is NOT a list of things that students (or teachers) do. It is a* ***detailed description*** *of the process.*

*We have used a generic set of headings in the template. You are free to change the headings to suit the particular unit, but you are* ***not*** *free to ignore any of the required information.*

*Be sure, when completing the unit-level template to contextualise the content … by which we mean that content needs to be grounded in real life – even mathematical equations need to be demonstrably linked to real life! A student needs to know* ***why*** *they are engaging with the content.*

MODULE - WEB TECHNOLOGIES

|  |  |
| --- | --- |
| **Details of institution that has developed the module** | |
| Name of University | THE STATE UNIVERSITY OF ZANZIBAR |
| Name of institutional contact | DR. MARYAM JAFFAR ISMAIL |
| Email address of institutional contact | maryam.ismail@suza.ac.tz |

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| **Details of Creative Commons licence** (<https://creativecommons.org/licenses/>) | |
| Licence type | Attribution-Non-commercial-Share Alike 4.0 International [(CC BY-NC-SA 4.0)](https://creativecommons.org/licenses/by-nc-sa/4.0/) |

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| **Details of the authors of/contributors to the course and their role** *(You can delete any sections that don’t apply.)* | |
| Original author (if applicable) |  |
| Lead author | **RAYA IDRISSA AHMADA** |
| *Responsible for:* | **Content development and Instructor** |
| Co-author/co-contributor | **MASSOUD MMANGA HAMAD** |
| *Responsible for:* | **Content development and Instructor** |
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| *Responsible for:* | **Online Course Administrator** |
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| *Responsible for:* | **Educational Technologist** |
| Co-author/co-contributor | **DR MARYAM JAFFAR ISMAIL** |
| *Responsible for:* | **Academic Developer /reviewer** |
| Co-author/co-contributor | **DR. HASSAN RASHID ALI** |
| *Responsible for:* | **Course leader** |

|  |  |
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| Co-author/co-contributor | **IDDI ALI IDDI** |
| *Responsible for:* | **Quality Assurance** |

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| **Information regarding format of material to upload onto the OER Africa repository** | |
| Primary resource (Not PDF) | The file to be uploaded is the zipped file from Moodle |
| Will a Moodle common cartridge be uploaded as well? | Yes |

*(A Moodle common cartridge is a .ZIP file of your module – if it is created in Moodle – that can be imported into another university’s Moodle platform.)*

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| **Course details** | | | | |
| Module title: | Web Technology | | | |
| Academic level: | 2nd year undergraduate | Number of student learning hours: | | 150 |
| Class contact time (hours): | 60 |
| Private/online study hours: | 90 | Number of weeks of study: | 15 | |
| Total student learning hours: | 150 | Number of units of study: | 15 | |

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| Programme(s) which might include this Module: | Bachelor of Science in Computer Science, Bachelor of Information Technology and Application Management, Bachelor of Information Technology and Accounting, Bachelor of Multimedia and Animation and other related programmes. |
| Pre-requisite student abilities and knowledge: | Basic programming language and basic computer skills |
| Pre-requisite (or co-requisite) modules: | None |

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| Aim of the module: | To enable students to apply knowledge and skills in designing and implementing web applications. |
| Brief description of module: | The course introduces students to the basics of Internet technology concepts, principles and tools that can be used to develop Internet applications. The course provides a basic understanding of browsers, web, Ajax, client and server programming, mark-up languages and database concepts.  This course is offered to the second year degree students majoring in Computer Science and IT. |

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| Intended learning outcomes: | *At the end of this* ***module****, you will be able to:*   1. Describe the Concepts of the Internet and Web technology 2. Design a static website using HTML/HTML5 and CSS/CSS3 3. Develop client-side application using technologies such as JavaScript, Ajax, JQuery and DOM 4. Develop server-side application using PHP 5. Apply database concepts in developing a web application 6. Apply basic principles of web security used in developing a web application 7. Design and implement an Internet application using the client/server model. |
| Indicative content: | 1. Introduction to the Internet and Web Application 2. Web Essentials 3. Client-Side Programming (JavaScript, DOM, JQuery, Ajax, JSON) 4. Server-side Programming (PHP) 5. Representing Web Data (PHP, MySQL and JSON) 6. Web Security 7. Building Web Application Project |
| Form of final/summative assessment: | In this course, you will be assessed formatively and summatively.  Formative assessment will carry 60% of the marks and 40% will be for summative. The formative assessment will consist of:   1. Test                                 10% 2. Practical             20% 3. Project 20% 4. Online quizzes              10%   Summative assessment will be through University Examination which consists of 40% marks.  At Least 40% score is expected from a student for formative assessment to be allowed to sit for the final University Examination. |

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| **Assessment of module-level learning outcomes** | |
| Module-level learning outcome | Module assessment task |
| 1. Describe the concept of the Internet and Web technology | Online Quiz |
| 1. Design a static website using HTML/HTML5 and CSS/CSS3 | Assignment to create a static website |
| 1. Develop client-side application using technologies such as JavaScript, Ajax, JQuery and DOM | Assignment to add interactivity to a website |
| 1. Develop server-side application using PHP | Assignment to use PHP in web applications |
| 1. Apply database concepts in developing a web application | Assignment to use database in web applications |
| 1. Apply basic principles of web security used in developing a web application | Assignment on how to add security features in web applications |
| 1. Design and implement Internet applications using the client/server model. | Project to develop a complete web application using the knowledge discussed in the previous sections. |

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| **Significant features or elements of module** |
| Internet Technologies, Web Essentials, Client-Side Programming, Server-Side Programming and Web Security. |

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| **Non-expert support:** | |
| What **skills** and **prior knowledge** of the subject matter should *facilitators* have **already** mastered before starting to teach this Module? | Ability to program a basic programming language, database concepts, knowing HTML well. |
| What **skills** do *support staff* need in order to support the delivery of this module? | Ability to develop web applications |

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| **Student profile in the context of this module:** | |
| What is the target group of students who would do this module? | Computer-related subjects students |
| What **skills** should a *student* have **already** mastered before starting this Module? | Basic Programming and Database concepts |
| What **prior knowledge** of the subject matter should a *student* have? | Basic knowledge of computers and basic programming language |

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| **Quality assurance matters** | | |
| How will feedback on module be obtained from students? | Student survey, Student Representative meetings with QA officers and Student Consultation with course instructor | |
| How will student feedback be used to improve the module? | For reviewing the course outline based on contents, assessment method and teaching learning materials through University QAs. | |
| A certificate, signed by the university’s Head of Quality Assurance, confirming that the module meets the requirements of the PEBL QA rubric is attached. | | Yes ☒ No ☐ |

WEEK-1

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| **Topic-level overview** | | **Week** |  |
| Topic title: | Introduction to the Internet and Web Application | | |
| Aim of the topic: | This unit lays the foundation to the Web Technologies course. The unit aims at enabling students to describe the basic concepts of the internet and Web Applications | | |
| This topic covers: | * Overview of the Internet * History of Internet * The Web Application * Web Application architectures | | |
| Intended learning outcomes: | *At the end of this* ***unit****, you will be able to:*   1. Describe the Concepts of the Internet and Web technology 2. Explain the basics of Internet technology such as ‘http/s’ protocols and the idea of ‘www’. 3. Analyse the concepts of Web Application architecture | | |

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| Overview of student activity: | There will be two face to face activities (lecture and presentation) and two online activities for this unit. |

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| **Constructive alignment of unit level outcomes with module level outcomes, learning activities and assessment** | | | |
| Intended unit learning outcomes: | No of module-level outcome | Activity where students engage with this outcome | Where and how is this outcome assessed? |
| ***At the end of this unit, you will be able to:*** | | | |
| 1. Describe the concepts of the Internet and Web technology | 1 | E-TIVITY 1.1 | Online Quiz. |
| 1. Explain the basic principles of Internet technology such as ‘http/s’ protocols and the idea of ‘www’. | 1 | E-TIVITY 1.1 | Online Quiz. |
| 1. Analyse the components of Web Application architecture | 1 | E-TIVITY 1.2 | Face-to-face presentation. |

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| Detailed explanation of ALL student and teacher engagement with the unit:  *(This should be presented in the order that the activities take place. So if students do work online* ***before*** *coming to the lecture, that should be shown ahead of what happens in class.*  *If there is more than one opportunity for face-to-face contact, or more than one online task, there should be a separate section for each instance, and they should be presented in the template in the same order that students encounter them.)*  ***Content*** *– such as lecture material – can EITHER be shown here OR added as* ***clearly identifiable*** *addenda to the document. If you plan to use addenda, you should ensure that this are cross-referenced in this section.)* | | | |
| Module-level outcomes addressed: | | | |
| Week 1 supports overall module outcome 1 | | | |
| Purpose of the Week: | | | |
| This unit provides an introduction to the basic concepts of the Internet and a web application | | | |
| Over to you: *(a description of the process of the section)* | | | |
| In this unit, you are first required to watch the YouTube video provided to build a basic understanding of the concept of Internet and web applications. You are then required to attempt an online quiz before lecture 1. | | | |
| Pre-topic activity: | | Number of hours | 3 |
| E-TIVITY 1.1:  The purpose of the pre-topic activity is to provide an insight into this week’s topic, *Introduction to the Internet and Web Application*, **before** you come to Lecture 1.  ***Task:***   * Watch the YouTube video entitled [Web Engineering Introduction | History of Internet | Protocols | WWW | HTTP](https://www.youtube.com/watch?v=8VWu_8c_7NE) by Easy Engineering Classes.   + Note down any concepts that you find challenging (and the timestamp on the video) and revisit those parts to clarify anything that you were unsure of.   + Search for (and watch!) other YouTube videos that may help you master an understanding of all the topics in the Easy Engineering video.   + Google any terms that need further clarification.   + Summarise the main ideas under each of the 5 headings: Basic Ideas of the Web; History of Internet; Web Technologies Terminologies such as Protocols, WWW, HTML and HTTP.   + Re-watch the video to ensure that you haven’t missed anything.   (2½ hours)   * When you are sure that you have mastered all the information and terminology, take this assignment to check your basic understanding of **Internet and Web Application**.   ***Attempt this assignment before the face-to-face lecture 1 and submit it to LMS***.  (½ an hour)  ***Resources for students:***  The URL for the video is: <https://www.youtube.com/watch?v=8VWu_8c_7NE>.  The questions for the assignment can be found at: <https://docs.google.com/document/d/1MR4wXMNK5pcxgtCW0F0pK2x8aZo4CKVZd5HEHkiysB8/edit>  ***Resources for teachers:***  The questions for the assignment can be found at: <https://docs.google.com/document/d/1MR4wXMNK5pcxgtCW0F0pK2x8aZo4CKVZd5HEHkiysB8/edit> | | | |
|  | | Number of hours | 4 |
| **Lecture 1: Introduction to the Internet and Web Application Architecture**  In this lecture, we are going to discuss the Internet and the evolution of the Web Application architectures. Main focus is on the following subtopics:   * Introduction to the Web and Internet Protocols * Web 1.0, 2.0 and 3.0 Application Architecture * Web application Design Patterns (1-tier, 2-tier,3-tier)   (1 hour)  ***Resources for teachers:***  The PowerPoint slides for Lecture 1 are found in the following link: <https://docs.google.com/presentation/d/1L6RPa6RFiTPRXCXvBFHKVo_U6E21Zgej/edit#slide=id.p1> | | | |
| **Presentation on Introduction to the Internet and Web Application**   1. In groups of two, prepare a short PowerPoint presentation (10-12) slides on Client-server architecture. For any website, say the State University of Zanzibar website, think about the following questions and include your answers in your presentation:    * Are there multiple clients?    * Who are these clients?    * Are there multiple servers?    * Why would there be multiple servers?   You will be assessed in class by your fellow students using rubric in the resources section below. *(It would make very good sense to ensure that you have addressed all the criteria on the rubric so that you are awarded a good mark.)*  (½ an hour)   1. Each pair of students will have 8 minutes to present what they have planned.    * The presentation must be delivered by ***both*** students – approximately 4 minutes each.    * You will be assessed by the rest of the class using the rubric that you took into account when creating your presentation.   (2½ hours)  ***Resources for students:***  The assessment rubric can be found at:  <https://docs.google.com/document/d/1Mg0FMKVV8C5ut35U1QEJxXrScx0w9pr5/edit> | | | |
| Online activity: | | Number of hours | 2 hours |
| What should students do? | E-TIVITY 1.2: Forum Discussion  The purpose of this forum discussion is to analyse the components of web application architectures.  ***Task:***  Please visit this week's discussion forum on the LMS and:   * ***Make a new thread*** where, in not more than 250 words, you summarise on the Web Application Architecture focussing on the following points:   + Web Application Definition   + How does it work?   + Web Application components * At the end, you will be provided with a summary document with all the work, and you will be asked to provide feedback to three of your fellow students.   ***Resources for students:***  The summary document on Web Application Architecture and Rubrics can be found at:  <https://docs.google.com/document/d/1jdsJmxuDyvBXwcO5tEPKd3KoLEOB_vkw/edit> | | |
| Where do they do it? | Online – LMS | | |
| By when should they do it? | By the end of the first week of the semester | | |
| E-moderator/tutor role | | | |
| * To lead forum discussion * To review posts and replay to other postings * To facilitate the face-to-face presentation * Give feedback * Provide key teaching points * Close E-tivities | | | |
| How are the learning outcomes in this unit assessed? | | Number of hours | 1 |
| There will be pre-lecture quiz and face-to-face peer presentation | | | |
| How does this section link to other sections of the module? | | | |
| Unit 1 forms the foundation to all the topics in the course | | | |

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| = Total number of hours | 10 hours |

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| **Some important questions** | |
| Which learning resources/ references will scaffold the students’ learning? | * Tutors PowerPoint presentations on the unit * Videos * Online links * E-books |
| How are students enabled to access the resources? | The materials will be uploaded for students on to the learning management system (LMS) |
| Where in this unit are students expected to work collaboratively? | E-TIVITY 1.2  Face-to-face presentations |
| How has an inclusive approach been incorporated in this unit? | * The use of computer * Peer review |
| How will feedback on unit be obtained from students? | * Students will be asked to give feedback at the end of the topic |
| How will student feedback be used to improve unit? | * The feedback will be analysed and improve the way the material is presented to class and update the contents if there is a need to do so. |
| At which point(s) will students receive formative feedback on the work they have done in the unit? | * Face to face activity feedback will be received in the first week of the second face to face. * Online activity feedback will be received at the end of the week. |

WEEK-2

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| **Unit-level overview** | | **Week** |  |
| Unit name or title: | Web Essentials – HTML | | |
| Aim of the unit: | In this topic you will be introduced to the introduction and a brief history of HTML, the language used to develop web pages. The aim of this unit is to prepare students to be able to design and develop static websites using HTML/HTML5. | | |
| This topic covers: | * The basics of HTML * HTML5 Overview | | |
| Intended learning outcomes: | *At the end of this* ***unit****, you will be able to:*   1. Design a static web page using HTML5 2. Demonstrate how to use the W3C HTML Validator to check for errors in a web page. | | |

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| Overview of student activity: | There will be two face to face activities (lecture and practical) and three online activities for this unit. |

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| **Constructive alignment of unit level outcomes with module level outcomes, learning activities and assessment** | | | |
| Intended unit learning outcomes: | No of module-level outcome | Activity where students engage with this outcome | Where and how is this outcome assessed? |
| ***At the end of this unit, you will be able to:*** | | | |
| 1. Design a static website using HTML5 | 2 | Assignment | Online Group Peer Review. |
| 1. Demonstrate how to use the W3C HTML Validator to check for errors in a web page | 2 | Assignment | Online Group Peer Review. |

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| Detailed explanation of ALL student and teacher engagement with the unit:  *(This should be presented in the order that the activities take place. So if students do work online* ***before*** *coming to the lecture, that should be shown ahead of what happens in class.*  *If there is more than one opportunity for face-to-face contact, or more than one online task, there should be a separate section for each instance, and they should be presented in the template in the same order that students encounter them.)*  ***Content*** *– such as lecture material – can EITHER be shown here OR added as* ***clearly identifiable*** *addenda to the document. If you plan to use addenda, you should ensure that this are cross-referenced in this section.)* | | | |
| Outcomes addressed: | | | |
| Week 2 supports overall module outcome 2 | | | |
| Purpose of the Week: | | | |
| The purpose of the unit is to equip students with the necessary knowledge and skills to create a basic static website. | | | |
| Over to you: *(a description of the process of the section)* | | | |
| In this topic you will be introduced to the basics and a brief history of HTML, the language used to develop web pages. The basics of HTML5, will also be introduced in this part. | | | |
| Pre-topic activity: Pre-reading activities | | Number of hours | 2 |
| The purpose of this pre-topic activity is to get ready to start building static web pages, and get an insight of HTML basics, a language used to develop web pages.  **Task:**   * Visit the provided links to equip yourself with mark-up language and focus on the basic standard HTML document structure format before the lecture in the classroom, which will be practical-oriented. The w3schools link provided contains a built-in editor to test the codes you write. * Familiarize yourself with the tools needed to write HTML pages. * Take an assignment **Get\_Ready\_HTML** to check your basic understanding of **HTML Basics**.   ***Do this assignment before the face-to-face lecture 2.***   * At the end of the unit (after lecture 2 and practical 1), come back and try the assignment again to see how your grasp of the function of the tools has improved.   ***Resources for students:***   * The links are provided:   [**https://www.w3schools.com/html/html\_intro.asp**](https://www.w3schools.com/html/html_intro.asp)  [**https://www.tutorialspoint.com/html5/index.htm**](https://www.tutorialspoint.com/html5/index.htm)   * To download an offline version of the w3schools, follow the instructions provided in the link below:   <https://www.dunebook.com/download-w3schools-offline/>   * Tools (Editors) for writing HTML can be found in the link below: <https://www.w3schools.com/html/html_editors.asp> * The assignment can be found in the VLE   ***Resources for teachers:***  The questions can be found in the link below:  [**https://docs.google.com/document/d/1hMCHHMaHlNsaNP8dCOmnH6xdo6d6aY7ujznW1riYozs/edit**](https://docs.google.com/document/d/1hMCHHMaHlNsaNP8dCOmnH6xdo6d6aY7ujznW1riYozs/edit) | | | |
| Face to face time: | | Number of hours | 2 |
| ***Lecture 2: HTML Basics***  In this lecture, we are going to discuss the basics of HTML which includes all the basic tags to create a basic static website, This will cover the following:   * Paragraphs, links, lists, tables, images, div, headings, * HTML forms * HTML5 elements * HTML graphics and Media   The PowerPoint slides for the lecture are provided in the link below**:**  [**https://docs.google.com/presentation/d/1FnWd7IcIeTFXLNPtiLHif3CDEivUR4BT/edit**](https://docs.google.com/presentation/d/1FnWd7IcIeTFXLNPtiLHif3CDEivUR4BT/edit) | | | |
| Face to face time: | | Number of hours | 2 |
| ***Practical 1: HTML Basics***  In this practical you will get some time to answer some prepared questions and the tutor will be around in case you need some help  **The practical is found in the link below:**  [**https://docs.google.com/document/d/13ord00vXMmHPvCcq9Gp6TufEDFv2GeWLB9ELyLovc28/edit**](https://docs.google.com/document/d/13ord00vXMmHPvCcq9Gp6TufEDFv2GeWLB9ELyLovc28/edit) | | | |
| Online activity: *Assignment* | | Number of hours | 1 |
| In pairs, come up with a theme for all the practical work that you are going to do during the rest of this module. Everything that you do from now on – websites, web application assignments, and your design for a complete web-based system – will be centred on this theme, so make sure that it is something that you can live with for the rest of the semester 😉.  Submit the title of your theme to the instructor in a PDF file.  Sample titles are as provided below:   * Hospital Management System * Blood Bank System * School Management System * University Admission System * Block Teaching Practise Management System | | | |
| Online activity: *Group Peer Review Assignment* | | Number of hours | 3 |
| What should students do? | E-TIVITY 2.2:  The purpose of this activity is to use HTML language to design a complete static website.  Task:  In pairs , develop a static website on the topics you have submitted and then upload it.. Once uploaded, you are then required to review other three groups’ assignments and mark them using the Rubrics provided by the instructor.  You can use the online validators given below to check for errors in your HTML codes:   * <https://validator.w3.org/> * <https://html5.validator.nu/>   **The rubric can be found in the link below:**  <https://docs.google.com/document/d/1QGWrcyTFJKX4kdN__FRh42cJZ3ciyavd/edit> | | |
| Where do they do it? | Online - LMS | | |
| By when should they do it? | By the end of the second week of the semester | | |
| E-moderator/tutor role | | | |
| Face-to-face tutorial on HTML/HTML5 elements  Assist in the online group peer review | | | |
| How are the learning outcomes in this unit assessed? | | Number of hours | 4 |
| Quiz and group peer review assignment on static website. | | | |
| How does this section link to other sections of the module? | | | |
| This section builds a basic understanding of the language used in website design, and students are encouraged to pay special attention to this part, before moving to the next topics. | | | |

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| = Total number of hours | 10 |

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| **Some important questions** | |
| Which learning resources/ references will scaffold the students’ learning? | Online  E-books  Computer Labs |
| How are students enabled to access the resources? | Face-to-face  Learning Management System(LMS) |
| Where in this unit are students expected to work collaboratively? | Peer-review-assignment  Assignment: To submit a web application title |
| How has an inclusive approach been incorporated in this unit? | * The use of computer * Peer review |
| How will feedback on unit be obtained from students? | * Students will post their online feedback on the Moodle platform * Face to face feedback will be provided in class during presentations. |
| How will student feedback be used to improve unit? | * Student feedback can be used to revise course content and/or design certain aspects and content, learning guides, teaching methods, activities, reflect on learning outcomes assessment types and teaching materials/resources. |
| At which point(s) will students receive formative feedback on the work they have done in the unit? | * Online activity feedback will be received at the end of the week. |

WEEK-3

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| **Unit-level overview** | | **Week** |  |
| Unit name or title: | Web Essentials – CSS | | |
| Aim of the unit: | The aim of the unit is to enable students to use Cascading Style Sheets (CSS/CSS3) to make the web pages look professional and presentable. The students will gain a ‘must-have skill’ for any web designer and developer. | | |
| This topic covers: | * Introduction to CSS * CSS Basic Syntax and Presentation * CSS Properties and Values * Division and Classes * CSS Selection and Styling * CSS Box Model * CSS Positioning * Responsive Web Design(RWD) | | |
| Intended learning outcomes: | *At the end of this* ***unit****, you will be able to:*   1. Demonstrate and apply CSS properties to HTML pages. | | |

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| Overview of student activity: | There will be two face to face activities (lecture and practical) and two online activities for this unit. |

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| **Constructive alignment of unit level outcomes with module level outcomes, learning activities and assessment** | | | |
| Intended unit learning outcomes: | No of module-level outcome | Activity where students engage with this outcome | Where and how is this outcome assessed? |
| ***At the end of this unit, you will be able to:*** | | | |
| 1. Demonstrate and apply CSS properties to HTML pages. | 1 | E-TIVITY 3.1  E-TIVITY 3.2 | Online Quiz and Group Peer Review Assignment  Online Peer Review Assignment |

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| Detailed explanation of ALL student and teacher engagement with the unit:  *(This should be presented in the order that the activities take place. So if students do work online* ***before*** *coming to the lecture, that should be shown ahead of what happens in class.*  *If there is more than one opportunity for face-to-face contact, or more than one online task, there should be a separate section for each instance, and they should be presented in the template in the same order that students encounter them.)*  ***Content*** *– such as lecture material – can EITHER be shown here OR added as* ***clearly identifiable*** *addenda to the document. If you plan to use addenda, you should ensure that this are cross-referenced in this section.)* | | | |
| Outcomes addressed: | | | |
| Week 3 supports overall module outcome 3 | | | |
| Purpose of the Week: | | | |
| To introduce to students on how to add CSS to make a website presentable. | | | |
| Over to you: *(a description of the process of the section)* | | | |
| Let us learn how to make our web pages from bland to bold with the power of CSS styling. Take a moment to watch the short video on the Introduction to HTML and CSS and then attempt the quiz that follows before the lecture. You can come back and re-attempt the quiz after the lecture and observe if you have made any improvement. | | | |
| Pre-topic activity: | | Number of hours | 3 |
| E-TIVITY 3.1:  The purpose of this pre-topic activity is to familiarize you with the basics of CSS  ***Task:***   * Watch the videos [Introduction to HTML and CSS by O’Reilly](https://www.youtube.com/watch?v=OZeoiotzPFg).   + Note down any concepts that you find challenging from the video.   + Open an editor and browser of your choice and try the examples demonstrated by the O’Reilly video.   + Come with the examples in the class for more discussion. * When you are comfortable that you have grasped all the information and terminologies, take this online quiz to check your basic understanding of **CSS Basics.**   ***Do this quiz before the face-to-face lecture 3***.  ***Resources for students:***  The links to the two videos are provided: <https://www.youtube.com/watch?v=OZeoiotzPFg>  The quiz can be found in the Virtual Learning Environment (VLE)  ***Resources for teachers:***  The questions for the quiz is found below:  <https://docs.google.com/document/d/13V-lKfRl_2L5Mv4QfJe0uWb_9VY6YSuPS6s4o1bZAUA/edit> | | | |
| Face-to-face: Lecture | | Number of hours | 2 |
| **Lecture 3: CSS Basics**  In this lecture, we are going to discuss the basics of CSS which includes:   * Introduction to CSS * CSS Basic Syntax and Presentation * CSS Properties and Values * Division and Classes * CSS Selection and Styling * CSS Box Model * CSS Positioning * Responsive Web Design(RWD)   Please refer to the folder CSS Script for sample scripts used within the lecture.  [**https://docs.google.com/presentation/d/1a4HlybjjrCDZqzKKoNnm4-9ukN8hLBPw/edit#slide=id.p1**](https://docs.google.com/presentation/d/1a4HlybjjrCDZqzKKoNnm4-9ukN8hLBPw/edit#slide=id.p1)  [**CSS\_Script\_Folder**](https://drive.google.com/drive/u/0/folders/1YPKZuMCqiEEfGHdwgO2aD3HDm6nrTTdg) | | | |
| Face-to-face: Practical | | Number of hours | 2 |
| **Practical 2: CSS**  With this practical, you will be able to demonstrate and apply CSS properties to HTML pages.  Take some time to practise the questions provided, if you have any problem instructor is around to help you.  The link to the CSS practical:  [**https://docs.google.com/document/d/1S9XnqdaCK8d4WQ9QdzTlBGtTZpHXY\_IK3qlGzipZhu8/edit**](https://docs.google.com/document/d/1S9XnqdaCK8d4WQ9QdzTlBGtTZpHXY_IK3qlGzipZhu8/edit) | | | |
| Online activity: Online Group Peer Review | | Number of hours | 4 |
| What should students do? | E-TIVITY 3.2  You are now supposed to redesign your website layout using div tags and CSS only.  You are asked to upload your work to the LMS. Once you have uploaded your work, you are then supposed to review the other three groups’ assignments and give them marks according to the Rubrics provided by the instructor.  Rubrics can be found below:  [**https://docs.google.com/document/d/1Ae02U977LgC7CHxWDllqeGHhDYT3fWbA/edit**](https://docs.google.com/document/d/1Ae02U977LgC7CHxWDllqeGHhDYT3fWbA/edit) | | |
| Where do they do it? | Online – LMS | | |
| By when should they do it? | By the end of week 3 | | |
| E-moderator/tutor role | | | |
| Face-to-face tutorial on CSS/CSS3  Assist in the online group peer review | | | |
| How are the learning outcomes in this unit assessed? | | Number of hours | 3 |
| Quiz and group peer review assignment on using CSS/CSS3 to style a web page. | | | |
| How does this section link to other sections of the module? | | | |
| Continuation of the previous week on a static website. | | | |

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| = Total number of hours | 10 |

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| **Some important questions** | |
| Which learning resources/ references will scaffold the students’ learning? | Online  E-books  Computer Labs |
| How are students enabled to access the resources? | Face-to-face  Learning Management System(LMS) |
| Where in this unit are students expected to work collaboratively? | Assignment: To create a static website using CSS/CSS3 |
| How has an inclusive approach been incorporated in this unit? | * The use of computer * Practical/Tutorial session |
| How will feedback on unit be obtained from students? | * Students will post their online feedback on the Moodle platform * Face to face feedback will be presented in class during the tutorial session. |
| How will student feedback be used to improve unit? | * The feedback will be analysed and improve the way the material is presented to class and update the contents if there is a need to do so. |
| At which point(s) will students receive formative feedback on the work they have done in the unit? | * Online activity feedback will be received at the end of the week. |

WEEK-4

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| **Unit-level overview** | | **Week** |  |
| Unit name or title: | Client-Side Programming - JavaScript Introduction | | |
| Aim of the unit: | The aim of this week is to introduce JavaScript concepts to help you create interactive web pages for your websites. | | |
| This topic covers: | * The basic syntax of JavaScript * Data types and variables * Javascript Functions * Conditions and Repetitions * Arrays and Regular Expressions. | | |
| Intended learning outcomes: | *At the end of this* ***unit****, you will be able to:*  1.Use event-handling to add interactivity to a web page. | | |

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| Overview of student activity: | There will be two face to face activities (lecture and practical) and two online activities for this unit. |

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| **Constructive alignment of unit level outcomes with module level outcomes, learning activities and assessment** | | | |
| Intended unit learning outcomes: | No of module-level outcome | Activity where students engage with this outcome | Where and how is this outcome assessed? |
| ***At the end of this unit, you will be able to:*** | | | |
| 1. 1.Use event-handling to add interactivity to a website | 3 | E-TIVITY 4.2 | Assignment |

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| Detailed explanation of ALL student and teacher engagement with the unit:  *(This should be presented in the order that the activities take place. So if students do work online* ***before*** *coming to the lecture, that should be shown ahead of what happens in class.*  *If there is more than one opportunity for face-to-face contact, or more than one online task, there should be a separate section for each instance, and they should be presented in the template in the same order that students encounter them.)*  ***Content*** *– such as lecture material – can EITHER be shown here OR added as* ***clearly identifiable*** *addenda to the document. If you plan to use addenda, you should ensure that this are cross-referenced in this section.)* | | | |
| Outcomes addressed: | | | |
| Week 4 supports overall module outcome 4 | | | |
| Purpose of the Week: | | | |
| In this week, JavaScript is introduced, a language to program the behaviour of web pages. | | | |
| Over to you: *(a description of the process of the section)* | | | |
| This week comprises some readings on the introduction to JavaScript which will introduce some simple examples and demonstrate the basic syntax of JavaScript. This will be followed by a lecture in class and practical session. At the end, some questions are provided to you to solve them. | | | |
| Pre-topic activity: | | Number of hours | 2 |
| The purpose of the pre-topic activity is to familiarize yourself with JavaScript before the lecture in the classroom, which will be practical-oriented.  ***Task:***   * Read the book “[The Missing Link](https://milnepublishing.geneseo.edu/themissinglink/)” by Michael Mendez chapter 34. * Check the w3schools link provided and note down what JavaScript can do from the given examples. * Familiarize yourself with the basic syntax of JavaScript. * Take an online quiz to check your basic understanding of JavaScript.   **Attempt this quiz before face-to-face lecture 4.**  ***Resources for students***  The links are provided below:  <https://www.w3schools.com/js/js_intro.asp>  [https://milnepublishing.geneseo.edu/themissinglink/](https://milnepublishing.geneseo.edu/themissinglink/chapter/chapter-34-javascript-syntax/)  ***Resources for teachers***  The quiz is found below:  **<https://docs.google.com/document/d/1hTVzCC_y7Imxx5dA6NGhTr7y-P1hmss__HSn4sfyCnY/edit>** | | | |
| Face to face time: *(if applicable)* | | Number of hours | 2 |
| **Lecture 4: Introduction to JavaScript**  In this lecture, we will discuss the basic syntax of JavaScript, data types and variables, functions, conditions, repetitions, arrays and Regular Expressions.  The link to lecture 4:  [**https://docs.google.com/presentation/d/1xtVAmWp210yBHDdzbCITRyitGLoGM8WYdjU5ZwT-Fyk/edit**](https://docs.google.com/presentation/d/1xtVAmWp210yBHDdzbCITRyitGLoGM8WYdjU5ZwT-Fyk/edit) | | | |
| Face to face time: *(if applicable)* | | Number of hours | 2 |
| **Practical 3: JavaScript**  With this practical, you will be able to write simple JavaScript programs  Please take sometime to practise the questions provided, if you have any problem instructor is around to help you.  The link to practical 3:  [**https://docs.google.com/document/d/11V3iCssiR6poYfXZ4ydl8wfVhgU6G1tamGvbAus3ZEE/edit**](https://docs.google.com/document/d/11V3iCssiR6poYfXZ4ydl8wfVhgU6G1tamGvbAus3ZEE/edit) | | | |
| Online activity: | | Number of hours | 4 |
| What should students do? | E-TIVITY 4.1  **Practical Assignment:** Answer the questions 4 and 5 found in Practical 3 and submit it to the LMS.  [**https://docs.google.com/document/d/11V3iCssiR6poYfXZ4ydl8wfVhgU6G1tamGvbAus3ZEE/edit**](https://docs.google.com/document/d/11V3iCssiR6poYfXZ4ydl8wfVhgU6G1tamGvbAus3ZEE/edit) | | |
| Where do they do it? | Online – LMS | | |
| By when should they do it? | By the end of the week. | | |
| E-moderator/tutor role | | | |
| Facilitate tutorial  Give feedback on submitted assignment to the LMS | | | |
| How are the learning outcomes in this unit assessed? | | Number of hours |  |
| The quiz and the practical assignment are assessed | | | |
| How does this section link to other sections of the module? | | | |
| This week forms a basic understanding for the coming two weeks. | | | |

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| = Total number of hours | 10 |

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| **Some important questions** | |
| Which learning resources/ references will scaffold the students’ learning? | Online  E-books  Computer Labs |
| How are students enabled to access the resources? | Face-to-face  Learning Management System |
| Where in this unit are students expected to work collaboratively? | Assignment: To add interactivity to a website using Javascript |
| How has an inclusive approach been incorporated in this unit? | * The use of computer * Practical/Tutorial session |
| How will feedback on unit be obtained from students? | * Students will post their online feedback on the Moodle platform * Face to face feedback will be presented in class during the tutorial session. |
| How will student feedback be used to improve unit? | * To modify how the content is delivered to the students and the assignments. |
| At which point(s) will students receive formative feedback on the work they have done in the unit? | * Online activity feedback will be received at the end of the week. |

WEEK-5

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| **Unit-level overview** | | **Week** |  |
| Unit name or title: | Client-Side Programming - DOM and JQuery | | |
| Aim of the unit: | In this week, Javascript is extended with the use of DOM and JQuery to handle event-handling and accessing HTML and CSS tags. | | |
| This topic covers: | * Introduction to DOM * Introduction to JQuery * HTML and CSS manipulation using DOM and JQuery * Event-Handling using DOM and JQuery * Effects and Animations * Introduction to front-end framework (Bootstrap) | | |
| Intended learning outcomes: | *At the end of this* ***unit****, you will be able to:*   1. Implement a website application using Client Side programming with Javascript DOM and JQuery | | |

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| Overview of student activity: | There will be two face to face activities (lecture and practical) and two online activities for this unit. |

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| **Constructive alignment of unit level outcomes with module level outcomes, learning activities and assessment** | | | |
| Intended unit learning outcomes: | No of module-level outcome | Activity where students engage with this outcome | Where and how is this outcome assessed? |
| ***At the end of this unit, you will be able to:*** | | | |
| 1. Implement a website application using Client Side programming with Javascript DOM and JQuery | 3 | E-TIVITY 5.1 | Assignment |

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| Detailed explanation of ALL student and teacher engagement with the unit:  *(This should be presented in the order that the activities take place. So if students do work online* ***before*** *coming to the lecture, that should be shown ahead of what happens in class.*  *If there is more than one opportunity for face-to-face contact, or more than one online task, there should be a separate section for each instance, and they should be presented in the template in the same order that students encounter them.)*  ***Content*** *– such as lecture material – can EITHER be shown here OR added as* ***clearly identifiable*** *addenda to the document. If you plan to use addenda, you should ensure that this are cross-referenced in this section.)* | | | |
| Outcomes addressed: | | | |
| This week supports overall module outcome 4 | | | |
| Purpose of the Week: | | | |
| This week you will be introduced to DOM and jQuery and how they are used to handle event-handling in HTML pages. | | | |
| Over to you: *(a description of the process of the section)* | | | |
| You will start by observing some examples in the provided links, attempt the quiz before the lecture and then there is a face-to-face lecture, followed by some hours of practical session in computer labs. As a final step, you will be required to answer the provided questions and submit them for marking. | | | |
| Pre-topic activity: | | Number of hours | 2 |
| * Visit the provided links to equip yourself with Javascript before the lecture in the classroom, which will be practical-oriented.   The w3schools link provided contains a built-in editor to test the codes you write.   * Also, read the book “The Missing Link” by Michael Mendez chapters 35 and 36. * Take an online quiz to check your basic understanding of **DOM and JQuery.**   ***Attempt this quiz before the face-to-face lecture 5.***  ***Resources for students:***  The links are given below:  [**https://milnepublishing.geneseo.edu/themissinglink/chapter/chapter-35-javascript-examples/**](https://milnepublishing.geneseo.edu/themissinglink/chapter/chapter-35-javascript-examples/)  [**https://milnepublishing.geneseo.edu/themissinglink/chapter/chapter-36-jquery/**](https://milnepublishing.geneseo.edu/themissinglink/chapter/chapter-36-jquery/)  ***Resources for teachers:***  The quiz can be found at:  [**https://docs.google.com/document/d/1w2fX-nNpSemaJs-wp2mT\_eWRBc\_U30t489Ht130zmtw/edit**](https://docs.google.com/document/d/1w2fX-nNpSemaJs-wp2mT_eWRBc_U30t489Ht130zmtw/edit) | | | |
| Face to face time: *(if applicable)* | | Number of hours | 2 |
| **Lecture 5: Document Object Model (DOM) and JQuery**  In this lecture we will discuss how to handle event-handling and accessing HTML and CSS tags using JQuery.  The following will be covered:   * Introduction to DOM * Introduction to JQuery * HTML and CSS manipulation using DOM and JQuery * Event-Handling using DOM and JQuery * Effects and Animations * Introduction to front-end framework (Bootstrap)   The lecture can be found below:  [**https://docs.google.com/presentation/d/12p4dEYyBlK8oFLU52sbvwQp3HDBlaNgWZdBh6KdcmXM/edit#slide=id.p**](https://docs.google.com/presentation/d/12p4dEYyBlK8oFLU52sbvwQp3HDBlaNgWZdBh6KdcmXM/edit#slide=id.p) | | | |
| Face to face time: *(if applicable)* | | Number of hours | 2 |
| **Practical 4:**  With this practical, you will be able to write javascript to add interactivity in websites using DOM and JQuery.  The link to the practical:  [**https://docs.google.com/document/d/1OR-9fAK\_TI\_Ns4fLCF6xZ1kAAbIReU5WmLHE8-hE4nc/edit**](https://docs.google.com/document/d/1OR-9fAK_TI_Ns4fLCF6xZ1kAAbIReU5WmLHE8-hE4nc/edit) | | | |
| Online activity: | | Number of hours | 4 |
| What should students do? | E-TIVITY 5.1  Answer the questions 3 and 4 found in Practical 4 and submit it to the LMS for marking.  [**https://docs.google.com/document/d/1OR-9fAK\_TI\_Ns4fLCF6xZ1kAAbIReU5WmLHE8-hE4nc/edit**](https://docs.google.com/document/d/1OR-9fAK_TI_Ns4fLCF6xZ1kAAbIReU5WmLHE8-hE4nc/edit) | | |
| Where do they do it? | Computer Lab | | |
| By when should they do it? | Before the next lecture. | | |
| E-moderator/tutor role | | | |
| To provide guidance on how to attempt the questions | | | |
| How are the learning outcomes in this unit assessed? | | Number of hours | 3 |
| The quiz and the practical assignment are assessed. | | | |
| How does this section link to other sections of the module? | | | |
| This is a continuation from the previous week. | | | |

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| = Total number of hours | 10 |

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| **Some important questions** | |
| Which learning resources/ references will scaffold the students’ learning? | E-books  Online materials  Computer Lab |
| How are students enabled to access the resources? | The links are provided in the LMS |
| Where in this unit are students expected to work collaboratively? | Practical Assignment |
| How has an inclusive approach been incorporated in this unit? | Face-to-face tutorial |
| How will feedback on unit be obtained from students? | Through the LMS |
| How will student feedback be used to improve the unit? | Practical questions, time to do the practical |
| At which point(s) will students receive formative feedback on the work they have done in the unit? | By the ned of the week |

WEEK-LEVEL TEMPLATE

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| **Unit-level overview** | | **Week** |  |
| Unit name or title: | Client-Side Programming - AJAX and JSON | | |
| Aim of the unit: | To discuss how to design an interactive application using AJAX and JSON | | |
| This topic covers: | * Overview of JSON syntax * Serializing and Deserializing Object * Introduction to AJAX * Retrieving JSON Object * AJAX Events | | |
| Intended learning outcomes: | *At the end of this* ***unit****, you will be able to:*   1. *A*dd interactivity to a website using AJAX and JSON | | |

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| Overview of student activity: | There will be two face to face activities (lecture and practical) and two online activities for this unit. |

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| **Constructive alignment of unit level outcomes with module level outcomes, learning activities and assessment** | | | |
| Intended unit learning outcomes: | No of module-level outcome | Activity where students engage with this outcome | Where and how is this outcome assessed? |
| ***At the end of this unit, you will be able to:*** | | | |
| 1. ***A***dd interactivity to a website using AJAX and JSON | 3 | E-TIVITY 6.1 | Practical Assignment |

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| Detailed explanation of ALL student and teacher engagement with the unit:  *(This should be presented in the order that the activities take place. So if students do work online* ***before*** *coming to the lecture, that should be shown ahead of what happens in class.*  *If there is more than one opportunity for face-to-face contact, or more than one online task, there should be a separate section for each instance, and they should be presented in the template in the same order that students encounter them.)*  ***Content*** *– such as lecture material – can EITHER be shown here OR added as* ***clearly identifiable*** *addenda to the document. If you plan to use addenda, you should ensure that this are cross-referenced in this section.)* | | | | |
| Outcomes addressed: | | | | |
| This week covers the overall module outcome 4 | | | | |
| Purpose of the Week: | | | | |
| The purpose is to discuss how to add interactivity in a web page using AJAX and JSON | | | | |
| Over to you: *(a description of the process of the section)* | | | | |
| You will start by observing some examples in the provided links, attempt the quiz before the lecture and then there is a face-to-face lecture, followed by some hours of practical session in computer labs. As a final step, you will be required to answer the provided questions and submit them to the LMS for marking. | | | | |
| Pre-topic activity: | | | Number of hours | 2 |
| Task:   * Read the provided links to equip yourself with an introduction to AJAX and JSON.   + Note down the basics and syntax writing. * Attempt the provided Quiz to check your understanding of AJAX and JSON before face-to-face lecture 6. * Record your marks obtained.   ***Resources to students:***  [**https://www.w3schools.com/js/js\_json\_intro.asp**](https://www.w3schools.com/js/js_json_intro.asp)  [**https://www.w3schools.com/js/js\_ajax\_intro.asp**](https://www.w3schools.com/js/js_ajax_intro.asp)  ***Resources to teachers:***  The quiz can be found at:  [**https://docs.google.com/document/d/1dLss5cvHtDhw3TvgQPMvS4HyEFyUpvtbZkO2qMTvUb0/edit**](https://docs.google.com/document/d/1dLss5cvHtDhw3TvgQPMvS4HyEFyUpvtbZkO2qMTvUb0/edit) | | | | |
|  | | | | |
| Face to face time: *(if applicable)* | | | Number of hours | 2 |
| **Lecture 6: Introduction to AJAX and JSON**  In this lecture we will discuss how to design an interactive web application using AJAX. The following will be covered:   * Overview of JSON syntax * Serializing and Deserializing Object * Introduction to AJAX * Retrieving JSON Object * AJAX Events   The lecture is found below:  [**https://docs.google.com/presentation/d/1WSo-3aAe0w0UY\_v3AF9s\_3s\_OmaKuuWujj-H\_\_DyVMw/edit#slide=id.p**](https://docs.google.com/presentation/d/1WSo-3aAe0w0UY_v3AF9s_3s_OmaKuuWujj-H__DyVMw/edit#slide=id.p) | | | | |
| Face to face time: *(if applicable)* | | Number of hours | | 2 |
| **Practical 5:**  Take some time to practise the questions provided, if you have any problem instructor is around to help you.  Find the practical below:  [**https://docs.google.com/document/d/1xMgf9WiJa-Y9l5Cu9zGtmLjdwvgkqMmtEqdevYZdtO4/edit**](https://docs.google.com/document/d/1xMgf9WiJa-Y9l5Cu9zGtmLjdwvgkqMmtEqdevYZdtO4/edit) | | | | |
| Online activity: | | | Number of hours | 4 |
| What should students do? | E-TIVITY 6.1  Please answer questions 2 and 3 found in Practical 5 and submit it to the LMS for marking. | | | |
| Where do they do it? | Online | | | |
| By when should they do it? | Before the next lecture | | | |
| E-moderator/tutor role | | | | |
| To provide guidance on how to attempt the questions | | | | |
| How are the learning outcomes in this unit assessed? | | | Number of hours | 3 |
| The quiz and the practical assignment are assessed. | | | | |
| How does this section link to other sections of the module? | | | | |
| This is a continuation from the previous week. | | | | |

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| = Total number of hours | 10 |

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| **Some important questions** | |
| Which learning resources/ references will scaffold the students’ learning? | Online readings  E-books |
| How are students enabled to access the resources? | Through the LMS |
| Where in this unit are students expected to work collaboratively? | Practical session |
| How has an inclusive approach been incorporated in this unit? | By designing a well assisted tutorial |
| How will feedback on unit be obtained from students? | Through the LMS |
| How will student feedback be used to improve unit? | * The feedback will be analysed and improve the way the material is presented to class and update the contents if there is a need to do so. |
| At which point(s) will students receive formative feedback on the work they have done in the unit? | Online Quiz  Assignment |

WEEK-7

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| **Unit-level overview** | | **Week** |  |
| Unit name or title: | Server-Side Programming using PHP | | |
| Aim of the unit: | In this topic, you will be introduced to PHP, a common server-side scripting language used for making dynamic and interactive web applications. | | |
| This topic covers: | * Installation of PHP and MySQL * PHP Basics * PHP Variables and Data Types, Operators, Conditions and Repetition * PHP Functions * PHP Arrays * Regular Expression in PHP | | |
| Intended learning outcomes: | *At the end of this* ***unit****, you will be able to:*   1. *Explain briefly what PHP is* | | |

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| Overview of student activity: | This week, you are required to prepare yourself by installing PHP and MySql into your computer ready for lecture on the introduction to PHP. You will then have some time to do hands-on activity s in class, and do the assignment and submit it to the LMS. |

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| **Constructive alignment of unit level outcomes with module level outcomes, learning activities and assessment** | | | |
| Intended unit learning outcomes: | No of module-level outcome | Activity where students engage with this outcome | Where and how is this outcome assessed? |
| ***At the end of this unit, you will be able to:*** | | | |
| 1. Explain briefly what PHP is | 4 | E-TIVITY 7.1 | Practical Assignment |

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| Detailed explanation of ALL student and teacher engagement with the unit:  *(This should be presented in the order that the activities take place. So if students do work online* ***before*** *coming to the lecture, that should be shown ahead of what happens in class.*  *If there is more than one opportunity for face-to-face contact, or more than one online task, there should be a separate section for each instance, and they should be presented in the template in the same order that students encounter them.)*  ***Content*** *– such as lecture material – can EITHER be shown here OR added as* ***clearly identifiable*** *addenda to the document. If you plan to use addenda, you should ensure that this are cross-referenced in this section.)* | | | |
| Outcomes addressed: | | | |
| This week covers the overall module outcome 4 | | | |
| Purpose of the Week: | | | |
| In this lecture, we will discuss how to design an interactive web application using a server-side scripting language, PHP. | | | |
| Over to you: *(a description of the process of the section)* | | | |
| This week, you are supposed to prepare yourself by installing PHP and MySQL into your computers ready for lecture on the introduction to PHP. You will then have some time to do practical questions in class, and do the assignment and submit it to the LMS. | | | |
| Pre-topic activity: | | Number of hours | 2 |
| **Installing PHP and MySQL**  The purpose of this pre-topic activity is to get ready for the development of our first dynamic website application. In this task you will install software that will be used during the coming weeks.  You are required to follow the instructions provided in the handouts and watch the provided videos, to complete this task.  ***Task:***   * Read the provided links based on which operating system you are using * Follow the step-to-step guide to install the required software in your computer. * This software includes a programming text editor and a PHP and MySQL Environment. * Finish all the necessary installations and screenshot images of your running software. * Submit the images to the VLE before the face-to-face lecture.   ***Resources for the students:***   * [Setting up the MAMP](https://docs.google.com/document/d/1Y_z46QUfuNJAjKXBAICk9PCGuPTLay0q/edit#heading=h.gjdgxs) * [PHP/MySql Environment on a Macintosh](https://docs.google.com/document/d/1Y_z46QUfuNJAjKXBAICk9PCGuPTLay0q/edit#heading=h.gjdgxs) * [Setting up the MAMP PHP/MySql Environment on a Windows](https://docs.google.com/document/d/1Ti2y_ze_NZZ3Vg7Y9eTA7wGEOfCOklam/edit) * [Setting up the XAMPP PHP/MySql Environment in Microsoft Windows](https://docs.google.com/document/d/1c3LbJX2SQHcShbVOm1MI1PRNkOSRIuVc/edit) | | | |
| Face to face time: *(if applicable)* | | Number of hours | 4 |
| [**Lecture 7: Introduction to PHP**](https://docs.google.com/document/d/1Y_z46QUfuNJAjKXBAICk9PCGuPTLay0q/edit#heading=h.gjdgxs)  In this lecture we will discuss how to design an interactive web application using PHP. The following topics will be covered:   * PHP Basics * PHP Variables and Data Types, Operators, Conditions and Repetition * PHP Functions * PHP Arrays * Regular Expression in PHP   Lecture 7 is found here: [**Lecture7-PHP-Intro.pptx**](https://docs.google.com/presentation/d/1ohk-5-H6fUedVVjdDZTxgZNrUQNoeE6c/edit#slide=id.p1) | | | |
| Face to face time: *(if applicable)* | | Number of hours | 4 |
| **Practical 6:**  With this practice, you will be able to write PHP programs.  Please take some time to practise the questions provided, if you have any problem, do not hesitate to contact your instructor..  The practical can be found in the link below:  [**Practical 6**](https://docs.google.com/document/d/1_sI0WnOu6c9lOleP2cleSMWLubYy5ULst_f53fBaNOw/edit) | | | |
| Online activity: | | Number of hours | 4 |
| What should students do? | E-TIVITY 7.1  You are supposed to answer the following questions and submit it to the LMS.  [**Assignment**](https://docs.google.com/document/d/1YzTu4KV5ehZ1d9Xf6Cis9a9qRUIrbfTyh0hnEDkpV2E/edit) | | |
| Where do they do it? | Learning Management System | | |
| By when should they do it? | Before the next lecture | | |
| E-moderator/tutor role | | | |
| Face-to-face tutorial on introduction to PHP | | | |
| How are the learning outcomes in this unit assessed? | | Number of hours | 5 |
| Quiz and assignment submitted to LMS. | | | |
| How does this section link to other sections of the module? | | | |
| This week lays a foundation that will set up for understanding the more complex concepts encountered in the coming weeks. | | | |

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| = Total number of hours | 10 |

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| **Some important questions** | |
| Which learning resources/ references will scaffold the students’ learning? | Online  E-books  Computer Labs |
| How are students enabled to access the resources? | Face-to-face  Learning Management System |
| Where in this unit are students expected to work collaboratively? | Assignment: To add interactivity to a web page using Javascript |
| How has an inclusive approach been incorporated in this unit? | * The use of computer * Practical/Tutorial session |
| How will feedback on unit be obtained from students? | * Students will post their online feedback on the Moodle platform * Face to face feedback will be presented in class during the tutorial session. |
| How will student feedback be used to improve unit? |  |
| At which point(s) will students receive formative feedback on the work they have done in the unit? | * Online activity feedback will be received at the end of the week. |

WEEK-8

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| **Unit-level overview** | | **Week** |  |
| Unit name or title: | PHP Forms Processing | | |
| Aim of the unit: | This week aims at extending the previous week’s discussion on the use of PHP to add interactivity. | | |
| This topic covers: | * Objects and Class * Exception Handling * PHP and HTML forms   + Using GET and POST   + HTML Input types   + Processing Form Data * File Handling and Emails | | |
| Intended learning outcomes: | *At the end of this* ***unit****, you will be able to:*  *Design an interactive web applications using PHP* | | |

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| Overview of student activity: | There will be two face-to-face activities and two online tasks |

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| **Constructive alignment of unit level outcomes with module level outcomes, learning activities and assessment** | | | |
| Intended unit learning outcomes: | No of module-level outcome | Activity where students engage with this outcome | Where and how is this outcome assessed? |
| ***At the end of this unit, you will be able to:*** | | | |
| 1. Design an interactive web applications using PHP | 4 | E-TIVITY 8.1 | Pair Programming |

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| Detailed explanation of ALL student and teacher engagement with the unit:  *(This should be presented in the order that the activities take place. So if students do work online* ***before*** *coming to the lecture, that should be shown ahead of what happens in class.*  *If there is more than one opportunity for face-to-face contact, or more than one online task, there should be a separate section for each instance, and they should be presented in the template in the same order that students encounter them.)*  ***Content*** *– such as lecture material – can EITHER be shown here OR added as* ***clearly identifiable*** *addenda to the document. If you plan to use addenda, you should ensure that this are cross-referenced in this section.)* | | | | | |
| Outcomes addressed: | | | | | |
| This week covers the overall module outcome 4 | | | | | |
| Purpose of the Week: | | | | | |
| The purpose of this week is to introduce PHP form handling. | | | | | |
| Over to you: *(a description of the process of the section)* | | | | | |
| You will start with a pre-topic material on how to process HTML forms using PHP. After the lecture, you will attend a practical session and finally in pairs design an interactive website using PHP. | | | | | |
| Pre-topic activity: | | Number of hours | | | 1 |
| The purpose of this pre-topic is to understand how to process HTML forms using PHP.  ***Task:***   * + Open the provided link on PHP form handling   + Look carefully at the example form given in the link   + Try and test form data sent with the HTTP POST method.   + Try and test form data sent with the GET POST method.   + Observe the difference between HTTP POST and GET methods * When you are sure that you have mastered how to process form data, take this online quiz to check your understanding on PHP form handling.   ***Do this quiz before the face-to-face lecture 8.***  ***Resources for students:***  The link for PHP form handling  [**https://www.w3schools.com/php/php\_forms.asp**](https://www.w3schools.com/php/php_forms.asp)  ***Resources for teachers:***  The questions and answers for the quiz can be found at [**Quiz**](https://docs.google.com/document/d/1e8JTNqsNhjLYq83tQuDo0yJ4AEGyUVwFHHbrTeAroTw/edit) | | | | | |
| Face to face time: *(if applicable)* | | Number of hours | | | 2 |
| **Lecture 8: PHP Forms**  In this lecture we will discuss how to design an interactive web application using PHP. The following topics will be covered:   * Objects and Class * Exception Handling * PHP and HTML forms   + Using GET and POST   + HTML Input types   + Processing Form Data * File Handling and Emails   The lecture is found below:  [Lecture8-Objects&Forms.ppt](https://docs.google.com/presentation/d/1iAChVOQ4_x1nZ-0vE2bpX3-8TyfcIF1R/edit?dls=true) | | | | | |
| Face to face time: *(if applicable)* | | | Number of hours | 2 | |
| **Practical 7:**  With this practice, you will be able to write PHP applications.  Please take some time to practise the questions provided, if you have any problem instructor is around to help you  The link to the practical:  [**Practical\_7\_PHP**](https://docs.google.com/document/d/1mSr-fr1qA-lagHE_7QiAgTZ7r-OuXu5GHP4LefQa2DY/edit) | | | | | |
| Online activity: | | Number of hours | | | 2 |
| What should students do? | E-TIVITY 8.1  In a group of two, you are required to design an interactive website using PHP and submit to the LMS. | | | | |
| Where do they do it? | Submit it to the LMS | | | | |
| By when should they do it? | By the end of the week | | | | |
| E-moderator/tutor role | | | | | |
| Assist in practical session  Provide feedback | | | | | |
| How are the learning outcomes in this unit assessed? | | Number of hours | | | 5 |
| Online quiz and peer review assignment | | | | | |
| How does this section link to other sections of the module? | | | | | |
| This is a continuation of the previous week's content. | | | | | |

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| = Total number of hours | 10 |

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| **Some important questions** | |
| Which learning resources/ references will scaffold the students’ learning? | Online  E-books  Computer Labs |
| How are students enabled to access the resources? | Face-to-face  Learning Management System |
| Where in this unit are students expected to work collaboratively? | Assignment: To add interactivity to web pages using PHP |
| How has an inclusive approach been incorporated in this unit? | * The use of computer * Practical/Tutorial session |
| How will feedback on unit be obtained from students? | * Students will post their online feedback on the Moodle platform * Face to face feedback will be presented in class during the tutorial session. |
| How will student feedback be used to improve unit? | * The feedback will be analysed and improve the way the material is presented to class and update the contents if there is a need to do so. |
| At which point(s) will students receive formative feedback on the work they have done in the unit? | * Online activity feedback will be received at the end of the week. |

WEEK-9

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| **Unit-level overview** | | **Week** |  |
| Unit name or title: | Representing Web Data (PHP and MySQL) | | |
| Aim of the unit: | In this topic you will be introduced to how PHP can be used to manipulate data in the database. | | |
| This topic covers: | * Introduction of MySQL * Data manipulation | | |
| Intended learning outcomes: | *At the end of this* ***unit****, you will be able to:*  To work with MySQL database for data storage and manipulation. | | |

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| Overview of student activity: |  |

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| **Constructive alignment of unit level outcomes with module level outcomes, learning activities and assessment** | | | |
| Intended unit learning outcomes: | No of module-level outcome | Activity where students engage with this outcome | Where and how is this outcome assessed? |
| ***At the end of this unit, you will be able to:*** | | | |
| To work with MySQL database for data storage and manipulation. | 5 | Practical Assignment | E-TIVITY 9.1 |

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| Detailed explanation of ALL student and teacher engagement with the unit:  *(This should be presented in the order that the activities take place. So if students do work online* ***before*** *coming to the lecture, that should be shown ahead of what happens in class.*  *If there is more than one opportunity for face-to-face contact, or more than one online task, there should be a separate section for each instance, and they should be presented in the template in the same order that students encounter them.)*  ***Content*** *– such as lecture material – can EITHER be shown here OR added as* ***clearly identifiable*** *addenda to the document. If you plan to use addenda, you should ensure that this are cross-referenced in this section.)* | | | | | |
| Outcomes addressed: | | | | | |
| This week covers the overall module outcome 5 | | | | | |
| Purpose of the Week: | | | | | |
| The purpose of this week is to equip students with the introduction of MySQL database for data manipulation, storage and retrieval. | | | | | |
| Over to you: *(a description of the process of the section)* | | | | | |
| Let’s see how we can store data in a database and use it in our web application. | | | | | |
| Pre-topic activity: | | | Number of hours | 1 | |
| This pre-topic activity introduces MySQL database which is going to be used for data storage and manipulation in the remaining part of the course.   * Watch the Youtube video entitled [MySQL 1 - Intro to MySQL](https://www.youtube.com/watch?v=UGu9unCW4PA) by Caleb Curry. * Note down the concepts that you find challenging and google for more clarification. * Summarise the video using 5 headings:   Database overview, database examples, Relational database, Advantages of database, Disadvantages of database.   * Keep the summary note for the discussion in face-to-face lecture 9. | | | | | |
| Face to face time: *(if applicable)* | | | Number of hours | 2 | |
| **Lecture 9**  In this lecture, we are going to discuss the introduction of MySQL, and how we can manipulate data in the web application.  The lecture is found below:  [**Lecture\_9.pptx**](https://docs.google.com/presentation/d/1X-LIi1s7QIX8-9bAWhErfdfICJSW0del/edit#slide=id.p1) | | | | | |
| Face to face time: *(if applicable)* | | Number of hours | | | 2 |
| **Practical 8:**  With this practice, you will be able to perform data manipulation with MySQL database.  Please take some time to practise the questions provided, if you have any problem instructor is around to help you  The link to the practical:  [Practical\_8\_MySQL](https://docs.google.com/document/d/1qAWLBpERXiQ_vRpLmTya7KFRc2Lyo4cuaTTKYVsfL4Y/edit) | | | | | |
| Online activity: | | | Number of hours | 4 | |
| What should students do? | **Assignment:** E-TIVITY 9.1  This is an individual assignment, you are required to follow all the questions and submit screenshots for each.  As part of the assignment you will submit a script file to the LMS.  **Note:**  A script file is a file with all the queries saved as filename.sql  [**Practical Assignment**](https://docs.google.com/document/d/1RoLHpVmjnzIe3lWulgZqDYa3xL0PduyCgVg_S6PROqU/edit) | | | | |
| Where do they do it? | Online - LMS | | | | |
| By when should they do it? | By the end of the week | | | | |
| E-moderator/tutor role | | | | | |
| Facilitate tutorial  Give feedback to the students assignment | | | | | |
| How are the learning outcomes in this unit assessed? | | | Number of hours |  | |
| Individual assignment | | | | | |
| How does this section link to other sections of the module? | | | | | |
| This week lays a foundation of what needs to be discussed in week 10 | | | | | |

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| = Total number of hours | 10 |

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| **Some important questions** | |
| Which learning resources/ references will scaffold the students’ learning? | Online  E-books  Computer Labs |
| How are students enabled to access the resources? | Face-to-face  Learning Management System |
| Where in this unit are students expected to work collaboratively? | Assignment: To create a database and manipulate data in the database. |
| How has an inclusive approach been incorporated in this unit? | * The use of computer * Practical/Tutorial session |
| How will feedback on unit be obtained from students? | * Students will post their online feedback on the Moodle platform * Face to face feedback will be presented in class during the tutorial session. |
| How will student feedback be used to improve unit? |  |
| At which point(s) will students receive formative feedback on the work they have done in the unit? | * Online activity feedback will be received at the end of the week. |

WEEK-10

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| **Unit-level overview** | | **Week** |  |
| Unit name or title: | Using MySQL in web application | | |
| Aim of the unit: | To enable students to use PHP and MySQL to create a complete web application. | | |
| This topic covers: | * Introduction to PDO * Connection of MySQL and PHP Using PDO * Building Web Application Using PHP and MySQL   + Creating, Retrieving, Updating, and Deleting (CRUD) Data in MySQL and PHP | | |
| Intended learning outcomes: | *At the end of this* ***unit****, you will be able to:*  Build a Web Application Using PHP and MySQL | | |

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| Overview of student activity: |  |

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| **Constructive alignment of unit level outcomes with module level outcomes, learning activities and assessment** | | | |
| Intended unit learning outcomes: | No of module-level outcome | Activity where students engage with this outcome | Where and how is this outcome assessed? |
| ***At the end of this unit, you will be able to:*** | | | |
| Build a Web Application Using PHP and MySQL | 5 | E-TIVITY 10.1 | Pair Programming |

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| Detailed explanation of ALL student and teacher engagement with the unit:  *(This should be presented in the order that the activities take place. So if students do work online* ***before*** *coming to the lecture, that should be shown ahead of what happens in class.*  *If there is more than one opportunity for face-to-face contact, or more than one online task, there should be a separate section for each instance, and they should be presented in the template in the same order that students encounter them.)*  ***Content*** *– such as lecture material – can EITHER be shown here OR added as* ***clearly identifiable*** *addenda to the document. If you plan to use addenda, you should ensure that this are cross-referenced in this section.)* | | | | | |
| Outcomes addressed: | | | | | |
| This week covers the overall module outcome 5 | | | | | |
| Purpose of the Week: | | | | | |
| This week we are going to discuss how we connect to MySQL using the Portable Data Objects (PDO) library and issue SQL commands in the PHP language. | | | | | |
| Over to you: *(a description of the process of the section)* | | | | | |
|  | | | | | |
| Pre-topic activity: | | Number of hours | | 2 | |
| * Please follow the MySQL/PDO Tutorial found in the provided link. * You are required to create a new account and enrol in the mentioned course. * You are then required to follow the instructions and as part of the work, you need to show that you have finished the tutorial by submitting a summary of what you have studied in the forum   [**https://www.webinaction.co.uk/courses/193534/lectures/2944024**](https://www.webinaction.co.uk/courses/193534/lectures/2944024)  ***Resources for students:***  Forum link to be provided (Found in the LMS) | | | | | |
| Face to face time: *(if applicable)* | | Number of hours | | 2 | |
| **Lecture 10**  In this lecture we are going to look at how we connect to MySQL using the Portable Data Objects (PDO) library and issue SQL commands in the PHP language. The following will be covered:   * Introduction to PDO * Connection of MySQL and PHP Using PDO * Building Web Application Using PHP and MySQL   + Creating, Retrieving, Updating, and Deleting (CRUD) Data in MySQL and PHP   Lecture 10 is found below:  [**Lecture\_10.pptx**](https://docs.google.com/presentation/d/14Sh2ACUEsaKzNG2SuKLemKSPiS8d6hHM/edit) | | | | | |
| Face to face time: *(if applicable)* | | | Number of hours | | 2 |
| **Practical 9:**  With this practical, you will be able to develop a web application using PHP and MySQL.  Please take some time to practise the questions provided, if you have any problem instructor is around to help you.  Practical 9 is found below:  [**Practical\_9\_PHP\_MySQL**](https://docs.google.com/document/d/1Ks2cMKVpZltfDFurD40AN6jFVWgS45H2OuvXAkBeY4U/edit) | | | | | |
| Online activity: | | Number of hours | | 4 | |
| What should students do? | E-TIVITY 10.1  In this assignment, you are supposed to develop a web application in pairs on the topics you have submitted using PHP and MySQL and submit the assignment to the LMS.  In this assignment, you are supposed to develop a web application in pairs on the topics you have submitted using PHP and MySQL and submit the assignment to the LMS. | | | | |
| Where do they do it? | Online - LMS | | | | |
| By when should they do it? | By the end of week 11 | | | | |
| E-moderator/tutor role | | | | | |
| Assist in practical session  Provide feedback | | | | | |
| How are the learning outcomes in this unit assessed? | | Number of hours | | 5 | |
| Online quiz and peer review assignment | | | | | |
| How does this section link to other sections of the module? | | | | | |
| This is a continuation of the previous week's content. | | | | | |

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| = Total number of hours | 10 |

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| **Some important questions** | |
| Which learning resources/ references will scaffold the students’ learning? | Online  E-books  Computer Labs |
| How are students enabled to access the resources? | Face-to-face  Learning Management System |
| Where in this unit are students expected to work collaboratively? | Forum Discussion  Assignment: To develop a web application |
| How has an inclusive approach been incorporated in this unit? | * The use of computer * Practical/Tutorial session |
| How will feedback on unit be obtained from students? | * Students will post their online feedback on the Moodle platform * Face to face feedback will be presented in class during the tutorial session. |
| How will student feedback be used to improve unit? | * The feedback will be analysed and improve the way the material is presented to class and update the contents if there is a need to do so. |
| At which point(s) will students receive formative feedback on the work they have done in the unit? | * Online activity feedback will be received at the end of the week. |

WEEK-11

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| **Unit-level overview** | | **Week** |  |
| Unit name or title: | Introduction to JSON | | |
| Aim of the unit: | The aim of this week is to introduce students to JSON and how it is used in web applications to create web services. | | |
| This topic covers: | * Writing a PHP Web Service (JSON) | | |
| Intended learning outcomes: | *At the end of this* ***unit****, you will be able to:*  Use JSON to make simple web services in a web application. | | |

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| Overview of student activity: |  |

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| **Constructive alignment of unit level outcomes with module level outcomes, learning activities and assessment** | | | |
| Intended unit learning outcomes: | No of module-level outcome | Activity where students engage with this outcome | Where and how is this outcome assessed? |
| ***At the end of this unit, you will be able to:*** | | | |
| Use JSON to make simple web services in a web application | 5 |  |  |

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| Detailed explanation of ALL student and teacher engagement with the unit:  *(This should be presented in the order that the activities take place. So if students do work online* ***before*** *coming to the lecture, that should be shown ahead of what happens in class.*  *If there is more than one opportunity for face-to-face contact, or more than one online task, there should be a separate section for each instance, and they should be presented in the template in the same order that students encounter them.)*  ***Content*** *– such as lecture material – can EITHER be shown here OR added as* ***clearly identifiable*** *addenda to the document. If you plan to use addenda, you should ensure that this are cross-referenced in this section.)* | | | | | |
| Outcomes addressed: | | | | | |
| Week 11 supports overall module outcome 6 | | | | | |
| Purpose of the Week: | | | | | |
| The purpose of this module is to introduce JSON and how it can be used with databases and as a web service in web applications. | | | | | |
| Over to you: *(a description of the process of the section)* | | | | | |
| Let’s continue to explore what we can do better with our web application. Here comes the web services... | | | | | |
| Pre-topic activity: | | Number of hours | | | 2 |
| Watch the provided video Working with JSON and PHP by codecourse, which briefly explain how JSON works with PHP with a real example and answer the questions in the quiz before Lecture 11.  [**https://www.youtube.com/watch?v=2qJT09LAh64**](https://www.youtube.com/watch?v=2qJT09LAh64) | | | | | |
| Pre-topic activity: | | Number of hours | | | 2 |
| Please take the provided Quiz to check your understanding of JSON before lecture 11.  ***Resource for teachers***  The quiz is found in the link:  [**Quiz\_json**](https://docs.google.com/document/d/1YMpHBx2Yog8cFeH3LDvUwtpzbCncbUTV6h55KTtZ5TA/edit#heading=h.bxzqz91saj83)  ***Resource for students***  The quiz is found in the LMS | | | | | |
| Face to face time: *(if applicable)* | | Number of hours | | | 2 |
| **Lecture 11**  In this lecture we are continuing with lecture 10, and we specifically discuss how the lesson above can be applied in real projects as Web Application through databases and Web Services. The following will be covered:   * Writing a PHP Web Service (JSON)   [Lecture\_11.pptx](https://docs.google.com/presentation/d/1KueBMkF5KB3ZVV5ZJJCf2l4C2qDKVGBW/edit) | | | | | |
| Face to face time: *(if applicable)* | | | Number of hours | 2 | |
| **Practical 11**  The following practical will help you to get an understanding of how JSON is used in web applications.  [**PHP-JSON Practical Exercises**](https://docs.google.com/document/d/1iwBkerYJmzAVgGZfSVeU6OWR8ayzafKce7p-zHJa67U/edit) | | | | | |
| Online activity: | | Number of hours | | | 2 |
| What should students do? | This forum allows you to discuss the practical assignment and any other clarification on how you can use JSON into your proposed web application projects. | | | | |
| Where do they do it? | Online - LMS | | | | |
| By when should they do it? | Before the start of lecture 12. | | | | |
| E-moderator/tutor role | | | | | |
| Assist in tutorial and provide feedback whenever necessary to the students | | | | | |
| How are the learning outcomes in this unit assessed? | | Number of hours | | | 2 |
| Online Quiz | | | | | |
| How does this section link to other sections of the module? | | | | | |
| This adds up to what have been discussed in the two previous weeks and marks the end of the crucial technologies needed to develop a web application. | | | | | |

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| = Total number of hours | 10 |

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| **Some important questions** | |
| Which learning resources/ references will scaffold the students’ learning? | Online  E-books  Computer Labs |
| How are students enabled to access the resources? | Face-to-face  Learning Management System |
| Where in this unit are students expected to work collaboratively? | Forum Discussion  Assignment: Using JSON in web application |
| How has an inclusive approach been incorporated in this unit? | * The use of computer * Practical/Tutorial session |
| How will feedback on unit be obtained from students? | * Students will post their online feedback on the Moodle platform * Face to face feedback will be presented in class during the tutorial session. |
| How will student feedback be used to improve unit? |  |
| At which point(s) will students receive formative feedback on the work they have done in the unit? | * Online activity feedback will be received at the end of the week. |

WEEK-12

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| **Unit-level overview** | | **Week** |  |
| Unit name or title: | Web Security | | |
| Aim of the unit: | In this topic you will be introduced to the concept of Security in Web Application, we will focus on the basic security principles for building secure applications. | | |
| This topic covers: | * Web Session * Web Cookies * Redirect, Routing and Authentication * PHP and MySQL Login and Logout | | |
| Intended learning outcomes: | *At the end of this* ***unit****, you will be able to:*   1. Describe why vulnerabilities exist in Internet applications. 2. Develop secure web applications 3. Implement best practices in developing web applications | | |

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| Overview of student activity: |  |

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| **Constructive alignment of unit level outcomes with module level outcomes, learning activities and assessment** | | | |
| Intended unit learning outcomes: | No of module-level outcome | Activity where students engage with this outcome | Where and how is this outcome assessed? |
| ***At the end of this unit, you will be able to:*** | | | |
| 1. Describe why vulnerabilities exist in Internet applications. | 6 | ? | E-TIVITY 12.1 |
| 1. Develop secure web applications | 6 | Peer Review Assignment | E-TIVITY 12.2 |
| 1. Implement best practices in developing web applications | 6 | Peer Review Assignment | E-TIVITY 12.2 |

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| Detailed explanation of ALL student and teacher engagement with the unit:  *(This should be presented in the order that the activities take place. So if students do work online* ***before*** *coming to the lecture, that should be shown ahead of what happens in class.*  *If there is more than one opportunity for face-to-face contact, or more than one online task, there should be a separate section for each instance, and they should be presented in the template in the same order that students encounter them.)*  ***Content*** *– such as lecture material – can EITHER be shown here OR added as* ***clearly identifiable*** *addenda to the document. If you plan to use addenda, you should ensure that this are cross-referenced in this section.)* | | | | | |
| Outcomes addressed: | | | | | |
| Week 12 supports overall module outcome 6 | | | | | |
| Purpose of the Week: | | | | | |
| The purpose of this unit is to discuss the possible existing security concerns and how a student, as a web developer could develop a secure web application. | | | | | |
| Over to you: *(a description of the process of the section)* | | | | | |
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| Pre-topic activity: | | | Number of hours | | 2 |
| * Read the provided link to familiarize yourself with Web attacks before the lecture. * In this forum you are required to choose one of the concepts below and explain it in not more than 100 words. * ‘The Concept of Risk in Web Application” * Sanitization and Validation in PHP * SHA-1 and MD5 in MySQL   ***Resources for students:***  [**https://www.symantec.com/connect/articles/five-common-web-application-vulnerabilities**](https://www.symantec.com/connect/articles/five-common-web-application-vulnerabilities)  [**http://www.umsl.edu/~sauterv/analysis/f06Papers/Eghbal/**](http://www.umsl.edu/~sauterv/analysis/f06Papers/Eghbal/) | | | | | |
| Face to face time: *(if applicable)* | | | Number of hours | | 2 |
| **Lecture 12 : Web Security**   * Web Session * Web Cookies * Redirect, Routing and Authentication * PHP and MySQL Login and Logout   The lectures are found below:  [**Lecture 12a.pptx**](https://docs.google.com/presentation/d/1DpU7RWSbe0n_-JBB1ESy--4rECx3yvKz/edit)  [**Lecture 12b.pptx**](https://docs.google.com/presentation/d/1NpMy0PBBgD9G9Q_iQpWmiBKBE_ZckkpK/edit#slide=id.p1) | | | | | |
| Face to face time: *(if applicable)* | | Number of hours | | 2 | |
| **Practical 11:**  With this practice, you will be able to test session, cookies, authentication and redirection.  Please take some time to practice the questions provided, if you have any problems the instructor is around to help you.  [**Practical 11**](https://docs.google.com/document/d/1D_IzBcPO9fuQiVbtppnf9guyoCZGy5FoNbWF7f9A50Y/edit) | | | | | |
| Online activity: | | | Number of hours | | 4 |
| What should students do? | E-TIVITY 12.2  Task:  Open practical 11 and do questions 4,5 and 6.  Screenshot all your outputs and submit them in one pdf file to the LMS  The link to the assignment is provided:  <https://docs.google.com/document/d/1D_IzBcPO9fuQiVbtppnf9guyoCZGy5FoNbWF7f9A50Y/edit> | | | | |
| Where do they do it? | Online – LMS | | | | |
| By when should they do it? | By the end of the week | | | | |
| E-moderator/tutor role | | | | | |
| Assist in practical session  Provide feedback | | | | | |
| How are the learning outcomes in this unit assessed? | | | Number of hours | | 5 |
| Online quiz and peer review assignment | | | | | |
| How does this section link to other sections of the module? | | | | | |
| This is a continuation of the previous week content. | | | | | |

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| = Total number of hours | 10 |

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| **Some important questions** | |
| Which learning resources/ references will scaffold the students’ learning? | Online  E-books  Computer Labs |
| How are students enabled to access the resources? | Face-to-face  Learning Management System |
| Where in this unit are students expected to work collaboratively? | Forum Discussion  Assignment: To develop a web application |
| How has an inclusive approach been incorporated in this unit? | * The use of computer * Practical/Tutorial session |
| How will feedback on unit be obtained from students? | * Students will post their online feedback on the Moodle platform * Face to face feedback will be presented in class during the tutorial session. |
| How will student feedback be used to improve unit? | * The feedback will be analysed and improve the way the material is presented to class and update the contents if there is a need to do so. |
| At which point(s) will students receive formative feedback on the work they have done in the unit? | * Online activity feedback will be received at the end of the week. |

WEEK-13

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| **Unit-level overview** | | **Week** |  |
| Unit name or title: | Web Application Vulnerabilities | | |
| Aim of the unit: | The aim is to familiarise students with the common web application vulnerabilities and attacks, and a way to design secured web applications. | | |
| This topic covers: | * Introduction Web Vulnerabilities and Attacks * SQL Injection * Cross Site Scripting (XSS) * Cross Site Request Forgery (CSRF) | | |
| Intended learning outcomes: | *At the end of this* ***unit****, you will be able to:*   1. *D*evelop secure web applications 2. Implement best practices in developing web applications | | |

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| Overview of student activity: | There will be two face-to-face activities and online activities which are peer reviewed assignment |

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| **Constructive alignment of unit level outcomes with module level outcomes, learning activities and assessment** | | | |
| Intended unit learning outcomes: | No of module-level outcome | Activity where students engage with this outcome | Where and how is this outcome assessed? |
| ***At the end of this unit, you will be able to:*** | | | |
| Develop secure web applications | 6 | Forum Discussion | E-TIVITY 13.1 |
| Implement best practices in developing web applications | 6 | Forum Discussion  Peer Review Assignment | E-TIVITY 13.1  E-TIVITY 13.2 |

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| Detailed explanation of ALL student and teacher engagement with the unit:  *(This should be presented in the order that the activities take place. So if students do work online* ***before*** *coming to the lecture, that should be shown ahead of what happens in class.*  *If there is more than one opportunity for face-to-face contact, or more than one online task, there should be a separate section for each instance, and they should be presented in the template in the same order that students encounter them.)*  ***Content*** *– such as lecture material – can EITHER be shown here OR added as* ***clearly identifiable*** *addenda to the document. If you plan to use addenda, you should ensure that this are cross-referenced in this section.)* | | | | | |
| Outcomes addressed: | | | | | |
| Week 13 supports overall module outcome 6 | | | | | |
| Purpose of the Week: | | | | | |
| The purpose of this unit is to introduce to students how they can test their web applications for existing threats and thus be able to develop web applications with security in mind. | | | | | |
| Over to you: *(a description of the process of the section)* | | | | | |
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| Pre-topic activity: | | Number of hours | | 2 | |
| E-TIVITY 13.1   * Read the provided link to familiarize yourself with Web attacks before the lecture. * In this forum you are required to briefly explain in your own words (not more than 100 words), two common web application vulnerabilities that you as a web developer can encounter in your context, and suggest ways to mitigate them.   ***Resources for students:***  [**https://www.symantec.com/connect/articles/five-common-web-application-vulnerabilities**](https://www.symantec.com/connect/articles/five-common-web-application-vulnerabilities)  [**http://www.umsl.edu/~sauterv/analysis/f06Papers/Eghbal/**](http://www.umsl.edu/~sauterv/analysis/f06Papers/Eghbal/)  ***Note to teachers:***  The students should only be able to see others posts, once they submit theirs | | | | | |
| Face to face time: *(if applicable)* | | Number of hours | | 2 | |
| **Lecture 13: Common Web Vulnerabilities and Attacks**   * Introduction Web Vulnerabilities and Attacks * SQL Injection * Cross Site Scripting (XSS) * Cross Site Request Forgery (CSRF)   [**Lecture 13**](https://docs.google.com/presentation/d/1tvBL9EP9V-qRQ89AS6oS7RAaPqloXUHFhkd7kU70f50/edit#slide=id.p) | | | | | |
| Face to face time: *(if applicable)* | | | Number of hours | | 2 |
| **Practical 12:**  Practical Demonstration and Exercise can be found in the link provided  In this practical, you are going to test some common web application vulnerabilities such as SQL injection and cross site scripting  [**Practical**](https://docs.google.com/document/d/1bgcnPjRjbJmttBtf0Q19zFBYDyGZJS25Pg09OG5Oo0E/edit) **12** | | | | | |
| Online activity: | | Number of hours | | 4 | |
| What should students do? | E-TIVITY 13.2  In a group of four, design web application forms and exchange your codes to test for the common web application vulnerabilities.  Give feedback and suggestions to your colleagues by referring to the examples in the lecture notes.  Submit the work you have reviewed, briefly explaining the feedback you give to others. | | | | |
| Where do they do it? | Online - LMS | | | | |
| By when should they do it? | By the end of the week | | | | |
| E-moderator/tutor role | | | | | |
| Assist in forum discussion and practical sessions. | | | | | |
| How are the learning outcomes in this unit assessed? | | Number of hours | | 4 | |
| In the assignment given to students at the end of the week. | | | | | |
| How does this section link to other sections of the module? | | | | | |
| This section adds up to all other sections of the module, to consider security in web application implementation. | | | | | |

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| = Total number of hours | 10 |

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| **Some important questions** | |
| Which learning resources/ references will scaffold the students’ learning? | Online  E-books  Computer Labs |
| How are students enabled to access the resources? | Face-to-face  Learning Management System |
| Where in this unit are students expected to work collaboratively? | Forum Discussion  Assignment: To develop a web application |
| How has an inclusive approach been incorporated in this unit? | * The use of computer * Practical/Tutorial session |
| How will feedback on unit be obtained from students? | * Students will post their online feedback on the Moodle platform * Face to face feedback will be presented in class during the tutorial session. |
| How will student feedback be used to improve unit? | * The feedback will be analysed and improve the way the material is presented to class and update the contents if there is a need to do so. |
| At which point(s) will students receive formative feedback on the work they have done in the unit? | * Online activity feedback will be received at the end of the week. |

WEEK-14

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| **Unit-level overview** | | **Week** |  |
| Unit name or title: | Web Application Design | | |
| Aim of the unit: | The aim of this week is to review the project title and project design | | |
| This topic covers: | * Project design | | |
| Intended learning outcomes: | *At the end of this* ***unit****, you will be able to:*  Design your final project on the web application | | |

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| Overview of student activity: | This week we are going to have two reviews of the final project of the whole module |

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| **Constructive alignment of unit level outcomes with module level outcomes, learning activities and assessment** | | | |
| Intended unit learning outcomes: | No of module-level outcome | Activity where students engage with this outcome | Where and how is this outcome assessed? |
| ***At the end of this unit, you will be able to:*** | | | |
| Design your final project on the web application | 7 | Forum Discussion | E-TIVITY 13.1 |

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| Detailed explanation of ALL student and teacher engagement with the unit:  *(This should be presented in the order that the activities take place. So if students do work online* ***before*** *coming to the lecture, that should be shown ahead of what happens in class.*  *If there is more than one opportunity for face-to-face contact, or more than one online task, there should be a separate section for each instance, and they should be presented in the template in the same order that students encounter them.)*  ***Content*** *– such as lecture material – can EITHER be shown here OR added as* ***clearly identifiable*** *addenda to the document. If you plan to use addenda, you should ensure that this are cross-referenced in this section.)* | | | |
| Outcomes addressed: | | | |
| This week covers the overall module outcome 7 | | | |
| Purpose of the Week: | | | |
| Review system and database design of the web application project. | | | |
| Over to you: *(a description of the process of the section)* | | | |
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| Pre-topic activity: | | Number of hours | 4 |
| **System and Database design**  In this review, you are going to discuss the database and system design in general and you will be given time to work on your proposed project titles. | | | |
| Face to face time: *(if applicable)* | | Number of hours |  |
|  | | | |
| Online activity: | | Number of hours | 6 |
| What should students do? | **Forum Discussion**  In this forum you are free to discuss any issues you encounter during the system design and implementation.  **System Design**  In this task, you are given time to design your proposed project. | | |
| Where do they do it? | Online | | |
| By when should they do it? | By the end of the module | | |
| E-moderator/tutor role | | | |
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| How are the learning outcomes in this unit assessed? | | Number of hours | 10 |
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| How does this section link to other sections of the module? | | | |
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| = Total number of hours | 10 |

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| **Some important questions** | |
| Which learning resources/ references will scaffold the students’ learning? | Online  E-books  Computer Labs |
| How are students enabled to access the resources? | Learning Management System |
| Where in this unit are students expected to work collaboratively? | Forum Discussion  Assignment: To develop a web application |
| How has an inclusive approach been incorporated in this unit? | * The use of computer * Practical/Tutorial session |
| How will feedback on unit be obtained from students? | * Students will post their online feedback on the Moodle platform * Face to face feedback will be presented in class during the tutorial session. |
| How will student feedback be used to improve unit? | * It will be used to modify the modality of the project design and the time allocated for the task. |
| At which point(s) will students receive formative feedback on the work they have done in the unit? | * Online activity feedback will be received at the end of the week. |

WEEK-15

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| **Unit-level overview** | | **Week** |  |
| Unit name or title: | Implementation of Web Application Project | | |
| Aim of the unit: | To implement a case study of the real web application project using the technologies provided in the previous weeks. | | |
| This topic covers: | * Final project presentation | | |
| Intended learning outcomes: | *At the end of this* ***unit****, you will be able to:*  Apply skills and techniques covered in the module to design and implement a web application project. | | |

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| Overview of student activity: | Completion of the final project and presentation of the project in class. |

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| **Constructive alignment of unit level outcomes with module level outcomes, learning activities and assessment** | | | |
| Intended unit learning outcomes: | No of module-level outcome | Activity where students engage with this outcome | Where and how is this outcome assessed? |
| ***At the end of this unit, you will be able to:*** | | | |
| Design your final project on the web application | 7 | Forum Discussion | E-TIVITY 13.1 |

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| Detailed explanation of ALL student and teacher engagement with the unit:  *(This should be presented in the order that the activities take place. So if students do work online* ***before*** *coming to the lecture, that should be shown ahead of what happens in class.*  *If there is more than one opportunity for face-to-face contact, or more than one online task, there should be a separate section for each instance, and they should be presented in the template in the same order that students encounter them.)*  ***Content*** *– such as lecture material – can EITHER be shown here OR added as* ***clearly identifiable*** *addenda to the document. If you plan to use addenda, you should ensure that this are cross-referenced in this section.)* | | | |
| Outcomes addressed: | | | |
| This week covers the overall outcome module 7 | | | |
| Purpose of the Week: | | | |
| To assess students’ knowledge and skills gained in web application design and development. | | | |
| Over to you: *(a description of the process of the section)* | | | |
| This week is dedicated for you to finish implementing your proposed project and present it to the class. | | | |
| Pre-topic activity: | | Number of hours |  |
| No | | | |
| Face to face time: *(if applicable)* | | Number of hours | 4 |
| **Project Presentation**  This time is allocated for the final presentation of the project | | | |
| Online activity: | | Number of hours | 6 |
| What should students do? | Submit their project proposal, system design document, implementation report and user manual. | | |
| Where do they do it? | Online - LMS | | |
| By when should they do it? | By the end of the week | | |
| E-moderator/tutor role | | | |
| Assist in supervision of the project  Guiding students in implementation of the project | | | |
| How are the learning outcomes in this unit assessed? | | Number of hours | 4 |
| Through presentation | | | |
| How does this section link to other sections of the module? | | | |
| This week marks the end of the whole module. The skills and techniques gained in previous lectures will be applied in the final project presentation. | | | |

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| = Total number of hours | 10 |

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| **Some important questions** | |
| Which learning resources/ references will scaffold the students’ learning? | Online  E-books  Computer Labs |
| How are students enabled to access the resources? | Face-to-face  Learning Management System |
| Where in this unit are students expected to work collaboratively? | Peer-review-assignment  Assignment: To submit a web application title |
| How has an inclusive approach been incorporated in this unit? | * The use of computer * Peer review |
| How will feedback on unit be obtained from students? | * Students will post their online feedback on the Moodle platform * Face to face feedback will be presented in class during the presentation. |
| How will student feedback be used to improve unit? | * How to submit and present the final project to the instructor. |
| At which point(s) will students receive formative feedback on the work they have done in the unit? | * Online activity feedback will be received at the end of the week. |