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| **Module Code** | **: HCS504** |
| **Module Title** | **: Web Development** |
| **Occurrence** | **: E1 E1** |

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| **SCQF** | **11** | **Credits** | **15** |
| **Faculty** | **Faculty of Design, Informatics and Business** | | **S1** |
| **Department** | **Department of Cybersecurity and Computing** | **Year** | **2024/5** |
| **Tutor** | **Abdul Razaq** | | |
| **External Examiner(s)** | **DR ALEXANDRA CODDINGTON** | | |
| **Prerequisites** | **HCS501** | | |
| **Corequisites** |  | | |
| **Replaced** |  | | |

**Brief Description**  
This module introduces the student to dynamic web applications, through client-side and server-side web development. The module will enable the student to develop necessary skills to develop database driven web applications, effectively employing server side technology.

**Aims**  
To provide student with the necessary skills to develop secure dynamic web applications on a full-stack platform, covering client-side and server-side interaction

**Learning Outcomes**  
By the end of this module the student should be able to :  
1. Plan and implement an effective web application supporting database transactions using a server-based database management system.  
2. Apply JavaScript, libraries, and frameworks to create effective user interfaces within an appropriate development practice and methodology.  
3. Critically evaluate legal, security, design and development issues in building complex database driven internet solutions.

**Indicative Content**  
  
1. **Web fundamentals**  
Core networking elements of the web. The role of HTML in common webpages. Css and its use in designing webpages.  
2. **Client and Server-side programming**  
Introduction to client and server web application. The web fundamentals required to develop applications for web servers and browsers. Introduction to clien/server scripting and development. Introduction to PHP.  
3. **PHP and Databases for websites**  
Using PHP to customise the user experience. POST and GET HTML forms. Database connections in web development. Secure, and unsecured data connections in PHP.  
4. **Web Design**  
Key components in responsive design. The importance of CSS/JS to create efficient and usable web design. Using web design libraries and integrating these into complex web applications.  
5. **Design Approaches**  
The importance of Progressive Enhancement (PE) and Graceful Degradation (GD) in designing web sites, and how data can be used to enhance the user experience.  
6. **Visual Perception**  
Incorporating effective visual perception into web application design. Perception strengths and weaknesses.  
7. **Digital Media**  
Application accessibility. Using Java Script and CSS to implement digital media into web applications.

**Statement on Teaching, Learning and Assessment**  
This module will be delivered fully online, with asynchronous delivery. Students will be provided with access to asynchronous materials, from a variety of different resources. Students will be expected to complete set weekly practical exercises which will enable them to put into practice and build their skills and knowledge of the concepts covered in the weekly reading materials. Most of the Abertay Attributes will be developed during the teaching of the module. The intellectual attribute will be developed through development and evaluation of the core module concepts. The professional attribute will be developed through use of technologies and techniques used by industry. The digital attribute is a constant thread throughout the module.

**Teaching and Learning Work Loads :**

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| **Total** | **: 150** |
| **Lecture** | **: 0** |
| **Tutorial/Seminar** | **: 0** |
| **Supervised Practical Activity** | **: 0** |
| **Unsupervised Practical Activity** | **: 0** |
| **Assessment** | **: 30** |
| **Independent** | **: 120** |

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| **Type** | **Description** | **Final Grade Weighting (%)** | **Assoc Learning Outcomes** |
| **Portfolio** | **Design and Practical Development components** | **100** | **1,2,3** |

**Additional Assessment Information**  
A portfolio of quizzes and practical tasks which will assess comprehension of weekly topics, and a PROJECT which will allow the students to demonstrate their applied knowledge by development of a web application

**Teachability Issues** for this module are:  
Oral,Visual,Writing,Diagrammatic,Reading,Computer-based,Collaboration

**Key Transferable Skills** for this module are:  
Communication,Team working/interpersonal,Research,Self-reflection

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