Prifysgol Cymru
Y Drindod Dewi Sant
University of Wales
Trinity Saint David

MODULE DIRECTORY

LEVEL 4

Certificate in Higher Education (CertHE) Computing Skills for the Workplace

INSTITUTE OF INNER-CITY LEARNING (IICL) BIMINGHAM CAMPUS (BC)

2022-2023

CONTENTS PAGE

Page No

INTRODUCTION..... 1

MODULES 2

ACCA4022 - Computer Architecture and Operating Systems 3

ACCA4025 -Learning in the Digital Era 5

ACCA4024 - Networks and Cyber Security Essentials 7

ACCA4023 - Introduction to Web and Database Concepts..... 9

ACCA4019 - Analysing and Solving Problems 11

ACCA4026 - Software Solutions for Business 13

INTRODUCTION

This Module Directory includes all the modules for Level 4 within the Academic Discipline of Certificate in Higher Education (CertHE) Computing Skills for the Workplace in the academic year 2022-2023.

This directory accompanies the Programme of Study Handbook, which will provide you with details of which modules you will be studying for your programme this year in the 'Programme of Study' section. This directory may include modules that are running on other programmes of study within your Academic Discipline/Institute. If you require assistance in identifying the modules for your programme of study, please contact the Programme Manager (whose name and contact details are provided in the accompanying Programme of Study Handbook), or the relevant Institute Office.

The University has made every effort to make the information as full and as accurate as possible, but you should note that minor changes in the organisation of modules between the planning stage and the actual teaching are inevitable. We shall try to keep any such changes to a minimum, and you will receive plenty of advance warning in the event of any alteration. We would also be grateful if you would let us know about any changes that you think might be helpful if introduced into future handbooks.

MODULES

Semester 1

Module Code	Title	Module type (component pass, core, compulsory or optional)	Credits
ACCA4022	Computer Architecture and Operating Systems	Compulsory	20
ACCA4025	Learning in the Digital Era	Compulsory	20

Semester 2

Module Code	Title	Module type (component pass, core, compulsory or optional)	Credits
ACCA4024	Networks and Cyber Security Essentials	Compulsory	20
ACCA4023	Introduction to Web and Database Concepts	Compulsory	20

Semester 3

Module Code	Title	Module type (component pass, core, compulsory or optional)	Credits
ACCB4019	Analysing and Solving Problems	Compulsory	20
ACCB4026	Software Solutions for Business	Compulsory	20

ACCA4022 - Computer Architecture and Operating Systems

Module Code	**ACCA4022**
Title	**Computer Architecture and Operating Systems**
Date	**09/09/2020**
Level	**4**
Credits	**20**
Pre-Requisites	**None**

AIM(S)

- To provide the student with a fundamental grounding in the key concepts behind typical computer architectures, hardware, networks and operating systems.

LEARNING OUTCOMES

Upon the successful completion of this module, the student should be able to:

- Determine the essential characteristics and concepts behind computer systems and components, number systems, data capacities and transfer speeds, in the context of typical PC hardware and networking environments.

- Demonstrate an understanding of general Operating System concepts.

INDICATIVE CONTENT

- Fundamentals of number systems. Binary, Dec and Hex notation, representation and conversion.
- Computer systems: major components and peripherals.
- Storage devices. Optical, HDD, SSD, RAID configurations etc.
- Nomenclature and specification of typical data capacities and transfer speeds
- Processor characteristics: RISC, CISC, multi-core etc.
- Computer architecture: system block diagram, CPU, memory, input/output unit, system clock, data bus, address bus, control bus, Harvard vs Von-Neumann etc.
- Memory Organisation: Main RAM, cache, virtual memory etc
- Input/output including polled, interrupts and direct memory access.
- Networking hardware and introduction to networking principles.
- OS fundamentals
- Privileges and permissions
- File system structures, navigation, viewing and editing files and scripts

Study Time Allocation

The study time for the module is divided as follows:

Activity type	Hours	Percentage
Scheduled learning	48	24%
Independent learning	152	76%
Placement learning	0	0%
TOTAL	**200**	**100%**

ASSESSMENT

Assessment Component 1

☒ **Written exam** ☐ **Coursework** ☐ **Practical**

Mode of assessment	Volume	Weighting
Exam	2 hours	50%

Assessment Component 2

☐ **Written exam** ☒ **Coursework** ☐ **Practical**

Mode of assessment	Volume	Weighting
Assignment	2500 words	50%

Assessment Summary

Activity type	Percentage
Written exam	50%
Coursework	50%
Practical	0%
TOTAL	**100%**

INDICATIVE READING LIST

Module Code	ACCA4022	
Module Title	Computer Architecture and Operating Systems	
Classification	**Reading List entry**	**Electronic***
Essential	W Stallings, Computer Organization and Architecture (10th Ed), Pearson, 2016	☐
Essential	I Englander, The architecture of Computer Hardware, Systems Software & Networking – An Information Technology Approach, John Wiley & sons, 2014	☐
Essential	E Siever, Linux in a nutshell, O'Reilly 2009	☒
Further	https://www.tomshardware.com/uk	☒
Further	https://www.anandtech.com/	☒
Further	J O'Gorman, Operating systems with Linux, Palagrave 2001	☐
Further	S Mueller, Upgrading and repairing PCs, Que 2015	☐

ACCA4025 -Learning in the Digital Era

Title	**Learning in the Digital Era**
Date	**25/06/2020**
Level	**4**
Credits	**20**
Pre-Requisites	**None**

AIM(S)

- To develop student's skills for independent study and life-long learning, which will form the foundations for successful completion of their degree programme and support future employment opportunities.

LEARNING OUTCOMES

Upon the successful completion of this module, the student should be able to:

- Demonstrate the foundational skills required to be a resilient and healthy independent learner.
- Practise the principles of learning agility
- Use suitable technology to support and enhance their learning experience within the discipline area

INDICATIVE CONTENT

- Time management, reading, writing, referencing and plagiarism, searching for and evaluating sources of information, working online.
- Critical thinking: issues concerning knowledge, belief, and doubt.
- Critical writing: synthesis, paraphrasing and creating an informed argument, avoiding plagiarism.
- Reflection and self-reflection.
- Identity and sense of place; including values, culture and intercultural awareness, heritage, diversity and inclusion and, multilingualism.
- Skills for a range of assessment modes, including blogs, vlogs, video, presentations, performances, posters, exams and written coursework.
- Skills and attitudes which underpin resilience, health, wellbeing and learning agility; the role of spirit, mind, emotions and body.
- Physical literacy: Consideration of the role of physical activity to the support of physical, mental health, well-being and resilience.
- Digital literacy: using appropriate technology; staying safe online, cyber security, digital identity.
- Team working.

Study Time Allocation

The study time for the module is divided as follows:

Activity type	Hours	Percentage
Scheduled learning	48	24%
Independent learning	152	76%
Placement learning	0	0%
TOTAL	**200**	**100%**

ASSESSMENT

Assessment Component 1

☐ **Written exam** ☒ **Coursework** ☐ **Practical**

Mode of assessment	Volume	Weighting
E-portfolio	Equivalent to 2,000 words	50%

Assessment Component 2

☐ **Written exam** ☐ **Coursework** ☒ **Practical**

Mode of assessment	Volume	Weighting
Video and Supporting Materials	Individual 3 minute video which incorporates supporting materials	50%

Assessment Summary

Activity type	Percentage
Written exam	0%
Coursework	50%
Practical	50%
TOTAL	**100%**

INDICATIVE READING LIST

This will be guided by the student's subject area.

Module Code	ACCA4025	
Module Title	Learning in the Digital Era	
Classification	**Reading List entry**	**Electronic***
Essential	Cottrell, S (2019) *The Study Skills Handbook.* 5th edn. London: Macmillan International Higher Education.	☒
Essential	Pears, R. and Shields, G.J. (2019) *Cite Them Right: the essential referencing guide.* 11th edn. London: Macmillan International Higher Education.	☒
Essential	Library Info Skills Sessions	☒
Further	Hopkins, D. and Reid, T., 2018. *The Academic Skills Handbook: Your Guide to Success in Writing, Thinking and Communicating at University*. London: Sage	☐
Further	Osmond, A., 2016. *Academic Writing and Grammar for Students* 2nd edn. London: SAGE.	☐

ACCA4024 - Networks and Cyber Security Essentials

Module Code	**ACCA4024**
Title	**Networks and Cyber Security Essentials**
Date	**09/09/2020**
Level	**4**
Credits	**20**
Pre-Requisites	**None**

AIM(S)

- To provide the students with an understanding of the key concepts and fundamentals of data communications, computer networks and security of data and devices in a network.

LEARNING OUTCOMES

Upon the successful completion of this module, the student should be able to:

- Develop fundamental understanding of network basics in terms of architecture, devices, application and protocols.

- Demonstrate systematic understanding of security policies and measures to mitigate internal and external attacks and threats in a network.

INDICATIVE CONTENT

- Fundamentals of networks, circuit and packet switching
- Communication on a network
- Client server model
- OSI and TCP/IP Models
- Types of Networks – LAN, WAN, MAN, SAN, etc
- Physical and logical addressing
- Wireless networks and standards
- Cyber Security – attacks, access control, encryption, cryptography
- Importance of data security
- System security – firewalls, threats, intruders and malicious software

Study Time Allocation

The study time for the module is divided as follows:

Activity type	Hours	Percentage
Scheduled learning	48	24%
Independent learning	152	76%
Placement learning	0	0%
TOTAL	**200**	**100%**

ASSESSMENT

Assessment Component 1

☐ **Written exam** ☒ **Coursework** ☐ **Practical**

Mode of assessment	Volume	Weighting
Portfolio	2000 words equivalent	50%

Assessment Component 2

☐ **Written exam** ☒ **Coursework** ☐ **Practical**

Mode of assessment	Volume	Weighting
in-class test	1 hrs	50%

Assessment Summary

Activity type	Percentage
Written exam	0%
Coursework	100%
Practical	0%
TOTAL	**100%**

INDICATIVE READING LIST

Module Code	ACCA4024	
Module Title	Networks and Cyber Security Essentials	
Classification	**Reading List entry**	**Electronic***
Essential	William Stallings (2014) Data and Computer Communications, 10th Edition, Pearson	☒
Essential	www.netacad.com Username and password required	☒
Essential	William Stallings (2017) Network Security Essentials: Applications and Standards, 6th Edition, Pearson	☒
Further	J. S. Beasley & P. Nilkaew (2018) Networking Essentials: A CompTIA Network+ N10-007 Textbook, 5th Edition, Pearson IT Certification	☒
Further	IEEE/ACM, IEEE/ACM Transactions on Networking	☒
Further	IEEE, IEEE Network Magazine	☒
Further	Science Direct	☒
Further	Scopus	☒

ACCA4023 - Introduction to Web and Database Concepts

Module Code	**ACCA4023**
Title	**Introduction to Web and Database Concepts**
Date	**09/09/2020**
Level	**4**
Credits	**20**
Pre-Requisites	**None**

AIM(S)

- To provide students with an understanding of the underlying concepts and principles needed to design and implement relational databases and build and render web pages.

LEARNING OUTCOMES

Upon the successful completion of this module, the student should be able to:

- Demonstrate a systematic understanding and application of the fundamental concepts, technologies, and standards required for building and rendering web pages.

- Demonstrate a systematic understanding of the underlying concepts of data and databases, and the methodology of database design. Apply appropriate systems investigation and analysis techniques to design and implement relational database solutions.

INDICATIVE CONTENT

- Data, Databases and Database Management Systems (DBMS).
- Conceptual, logical and physical database design. Database design and entity analysis techniques.
- Entity-relationship models: entities, relationships, attributes and integrity constraints.
- Relational database implementation using DBMS software and Structured Query Language (SQL).
- Core technologies for building and rendering web pages i.e. HTML, CSS.
- Web content, including text, graphics, media content, hypertext and hypermedia, web forms, etc.
- Fundamental standards and principles of web design and applications i.e. interface and layout design principles, mobile web and device-independent web practices, web accessibility, etc.
- Web evaluation techniques and tools e.g. standards validation, browser evaluation tools, accessibility evaluation, and performance assessment.

Study Time Allocation

The study time for the module is divided as follows:

Activity type	Hours	Percentage
Scheduled learning	48	24%
Independent learning	152	76%
Placement learning	0	0%
TOTAL	**200**	**100%**

ASSESSMENT

Assessment Component 1

☐ **Written exam** ☒ **Coursework** ☐ **Practical**

Mode of assessment	Volume	Weighting
Portfolio	2 - 3 elements	50%

Assessment Component 2

☐ **Written exam** ☒ **Coursework** ☐ **Practical**

Mode of assessment	Volume	Weighting
Portfolio	2 - 3 elements	50%

Assessment Summary

Activity type	Percentage
Written exam	0%
Coursework	100%
Practical	0%
TOTAL	**100%**

INDICATIVE READING LIST

Module Code	ACCA4023	
Module Title	Introduction to Web and Database Concepts	
Classification	**Reading List entry**	**Electronic***
Essential	Connolly, T., Begg, C., 2015, *Database Systems: A Practical Approach to Design, Implementation and Management*, 6th Edition, Addison Wesley	☒
Essential	Viescas, J. L., 2018, SQL Queries for Mere Mortals: A Hands-On Guide to Data Manipulation in SQL, 4th Edition, Addison-Wesley Professional	☒
Essential	Robbins, J., 2018, Learning Web Design: A Beginner's Guide to HTML, CSS, JavaScript, and Web Graphics, O'Reilly Media	☒
Further	Duckett, J., 2014, *Web Design with HTML, CSS, JavaScript and jQuery Set*, Wiley	☒
Further	Coronel, C. & Morris, S., 2018, Database Systems: Design, Implementation, & Management, 13th Edition, Cengage Learning	☒

ACCA4019 - Analysing and Solving Problems

Module Code	**ACCA4019**
Title	**Analysing and Solving Problems**
Date	**14/05/2020**
Level	**4**
Credits	**20**
Pre-Requisites	**None**

AIM(S)

- To provide students with the ability to develop generic solutions to problems using abstract thinking skills

LEARNING OUTCOMES

Upon the successful completion of this module, the student should be able to:

- Evaluate a problem and formulate requirements and constraints.
- Analyse a problem and produce a logical solution

INDICATIVE CONTENT

- Deconstructing Technical Language and Identifying Problems
- Problem solving approaches and techniques
- Interpreting natural language problems
- Subdividing problems
- Constraining problems
- Determining generic and specific solutions.
- Abstract thinking skills
- Critical Thinking Skills
- Reapplying solutions across different contexts
- Rules, heuristics and algorithms
- Logic and rhetoric
- Logical fallacies
- Boolean algebra
- Statistics and analysing results

Study Time Allocation

The study time for the module is divided as follows:

Activity type	Hours	Percentage
Scheduled learning	48	24%
Independent learning	152	76%
Placement learning	0	0%
TOTAL	**200**	**100%**

ASSESSMENT

Assessment Component 1

☐ **Written exam** ☐ **Coursework** ☒ **Practical**

Mode of assessment	Volume	Weighting
Practical – for example, a Moodle-based quiz or a task such as flowcharting a problem	1 hour	50%

Assessment Component 2

☐ **Written exam** ☒ **Coursework** ☐ **Practical**

Mode of assessment	Volume	Weighting
Written assessment	1500 words	50%

Assessment Summary

Activity type	Percentage
Written exam	0%
Coursework	50%
Practical	50%
TOTAL	**100%**

INDICATIVE READING LIST

Module Code	**ACCA4019**	
Module Title	**Analysing and Solving Problems**	
Classification	**Reading List entry**	**Electronic***
Essential	Curzon P and McCowan P (2017) Power Of Computational Thinking, The: Games, Magic And Puzzles To Help You Become A Computational Thinker, World Scientific	☒
Essential	Levitin, A and Levitin, M (2011) Algorithmic Puzzles, Oxford University Press.	☐
Further	Michalewicz, M and Michalewicz Z (2010), Puzzle-based Learning; An introduction to critical thinking, mathematics and problem solving, Hybrid Publishers.	☐
Further	Fraser, Jen and Anthony, P (2014) Everyone's a Genius: Simple Tips to Boost Your Brilliance Now, Ideation Training Pty Ltd	☐
Further	Gardner, M (1978) aha! Insight, Scientific American.	☐
Further	McInerny, D Q (2005) Being Logical, Random House	☐
Further	Watanbe, K (2009) Problem Solving 101: A Simple Book for Smart People	☐

ACCA4026 - Software Solutions for Business

Module Code	**ACCA4026**
Title	**Software Solutions for Business**
Date	**09/09/2020**
Level	**4**
Credits	**20**
Pre-Requisites	**None**

AIM(S)

- To give students a theoretical and a practical understanding and knowledge of various software and applications used within businesses.

LEARNING OUTCOMES

Upon the successful completion of this module, the student should be able to:

- Knowledge and skills to use software packages and applications to support day-to-day business operations.

- Ability to create, present and communicate information in a structured and managed way at their workplace.

INDICATIVE CONTENT

- Essential software for businesses operation
- Office software packages
- Documentation – create, format, tables, pictures, mail merge,
- Spreadsheets and macros
- Emails and other communication tools
- PowerPoint Presentations
- Databases and concepts
- Online collaboration tools - SharePoint, Skype for Business, MS Teams.
- Working with pdf
- Privacy, Ethics and legal aspects for computing

Study Time Allocation

The study time for the module is divided as follows:

Activity type	Hours	Percentage
Scheduled learning	48	24%
Independent learning	152	76%
Placement learning	0	0%
TOTAL	**200**	**100%**

ASSESSMENT

Assessment Component 1

☐ **Written exam** ☒ **Coursework** ☐ **Practical**

Mode of assessment	Volume	Weighting
Portfolio	4000 words equivalent Students will produce a portfolio of work appropriate to the nature of their area of study. Portfolio elements may include a selection of the following: • Written Report • Presentation slides • Software/hardware implementation • Demonstration of work	100%

Assessment Summary

Activity type	Percentage
Written exam	0%
Coursework	100%
Practical	0%
TOTAL	**100%**

INDICATIVE READING LIST

Module Code	ACCA4026	
Module Title	Software Solutions for Business	
Classification	**Reading List entry**	**Electronic***
Essential	J. T. Campbell, S. M. Freund, M. Frydenberg, M. Z. Last, P. J. Pratt, S. L. Sebok, M. E. Vermaat (2017) Shelly Cashman Series Discovering Computers & Microsoft Office 365 & Office 2016: A Fundamental Combined Approach, 1st Edition	☒
Essential	P. Carey, K. T. Pinard, A. Shaffer, M. Shellman, S. Vodnik (2020) New Perspectives Microsoft Office 365 & Office 2019 Introductory, 1st Edition	☒
Further	S Baase & T. M. Henry (2018) Gift of Fire, A: Social, Legal, and Ethical Issues for Computing Technology, 5th Edition, Pearson	☒