ACADEMIC PARTNERSHIPS PROGRAMME QUALITY HANDBOOK 2024-25

Higher National Certificate Applied Computing

Contents

Welcome and Introduction

Welcome to the: HNC Applied Computing delivered by Exeter College, in Exeter Devon.

Distinctive Features of this Programme and the Student Experience

- Small group sizes in a supportive environment
- Opportunities to gain Microsoft Technical Associate qualifications alongside the programme
- Access to Computer Lab and high specification computer rooms for teaching and learning
- Employer responsive curriculum supported by employer mentoring programme
- City based location creates opportunities for access to cutting edge technology and big data sources
- HNC and HND Study Business Intelligence supported by local agencies and employers to provide students opportunities to work with live data
- HND Specialist curriculum focus on Cyber Security and Cloud Technologies
- Staff actively engaged in industry supported by wider ongoing CPD
- HNC Progression route onto HND with further progression opportunities onto a relevant BSc (Hons) at the University Plymouth
- Progression agreement to BSc (Hons) Computing with the University of Plymouth
- Exeter College is part of the South West Institute of Technology programme (SWIoT). This is a government sponsored regional development programme, which has resulted in significant additional investment in Exeter College, to support regional developments
- Exeter College Institute of Technology – a purpose built IT educational facility.

Programme development, employer and university collaboration

- This programme was designed in consultation with local employers. It also incorporates elements from a review (2020 and 2021) of the immediate and future needs of the regional workforce, improving the employment prospects of our students.
- Work based learning is an integral part of the programme. A required project develops an understanding of the needs of businesses dependent upon IT. This also develops the soft skills that businesses demand of employees.
- Working with the University of Plymouth, we have ensured that progression both within and from the programmes can lead to regional employment or onto a BSc Computing Programme at Plymouth. In addition, progression to other specialist universities is possible. Previous students from Exeter College have achieved success academically and in employment.

This programme has been designed to equip you with the skills and knowledge base required to work in your chosen specialism or other graduate opportunities. It is also a platform from which you can undertake additional vocational and academic qualifications.

This Programme Quality handbook contains important information including:

- The approved programme specification
- Module records

Note: The information in this handbook should be read in conjunction with the current edition of:

- Your University Student Institution Handbook, which contains student support-based information on issues such as finance and studying at HE available on Moodle
- Your Module Guide available on Moodle
- Your University of Plymouth Student Handbook available at: https://www.plymouth.ac.uk/your-university/governance/student-handbook

Programme Specification

1. HNC

Final award title Higher National Certificate in Applied Computing

UCAS code: I099

HECOS: 100366 Computer Sciences

2. Awarding Institution: University of Plymouth

Teaching institution(s): Exeter College

3. Accrediting body(ies) N/A

4. Distinctive Features of the Programme and the Student Experience

- Small group sizes in a supportive environment
- Opportunities to gain Microsoft Technical Associate qualifications alongside the programme
- Access to Computer Lab and high specification computer rooms for teaching and learning
- Employer responsive curriculum supported by employer mentoring programme
- City based location creates opportunities for access to cutting edge technology and big data sources
- Study Business Intelligence supported by local agencies and employers to provide students opportunities to work with live data
- Staff actively engaged in industry supported by wider ongoing CPD
- Progression route onto HND with further progression opportunities onto a relevant BSc (Hons) at the University Plymouth

5. Relevant QAA Subject Benchmark Group(s)

- Computing QAA Subject Benchmark Statement February 2016

6. Programme Structure

Full Time Option:

	Module Code[1]	Module Title	Credits	Trimester	Compensatable
Year 1	EXCE1157	Computational Thinking	20	1	Y
	EXCE1161	Software Development	20	1	Y
	EXCE1159	Databases & Information Systems	20	2	Y
	EXCE1160	Business Intelligence & Big Data	20	2	Y
	EXCE1158	Computer Systems & Control	20	3	Y
	EXCE1162	Fundamentals of Computer Networking	20	3	Y

Part Time Option:

	Module Code[2]	Module Title	Credits	Trimester	Compensatable
Year 1	EXCE1157	Computational Thinking	20	1	Y
	EXCE1160	Business Intelligence & Big Data	20	2	Y
	EXCE1158	Computer Systems & Control	20	3	Y
Year 2	EXCE1161	Software Development	20	1	Y
	EXCE1159	Databases & Information Systems	20	2	Y
	EXCE1162	Fundamentals of Computer Networking	20	3	Y

7. Programme Aims

The aims of the course are:

1. To develop the core skills to enable students to study and work in a computing discipline at a high level.

2. To deliver a wide range of theory and practical activities that will broaden students' knowledge to enable them to identify pathways that will shape their longer-term ambition.

3. To provide opportunities for students to achieve vendor accredited certifications.

4. To equip students to enter or progress in employment in computing, or higher education qualifications such as a Higher National Diploma in computing or a related area.

8. Programme Intended Learning Outcomes

8.1. Knowledge and understanding

On successful completion graduates should have developed knowledge and understanding of:

1. Underlying theoretical concepts and principles of computing
2. How to apply coding, networking, data analysis and security solutions
3. The role of computing data, processes, and security to the wider industry

8.2. Cognitive and intellectual skills

On successful completion graduates should have developed:

1. The ability to interpret and evaluate data, e.g., pattern recognition, to inform and develop lines of argument
2. How to process information to pursue solutions to problems.

8.3. Key and transferable skills

On successful completion graduates should have developed the ability to:

1. Understand the importance of adhering to relevant ethical principles
2. Use appropriate tools/methods to create effective solutions to problems
3. Communicate effectively in a variety of formats, including critical analysis where appropriate

8.4. Employment related skills

On successful completion graduates should have developed:

1. The ability to acquire employment specific qualities and skills
2. The ability to use project management methodologies in a simulated professional setting

8.5. Practical skills

On successful completion graduates should have developed**:**

1. The ability to identify and plan solutions to a variety of problems, including coding and networking

2. The skills to identify solutions to meet user specification

3. The ability to test and evaluate proposed solutions, working towards subject standards

9. Admissions Criteria, including APCL, APEL and Disability Service arrangements

Entry Requirements for HNC Computing	
GCSE	Maths and English at Grade 4/C or above
A-level/AS-level	Minimum entry requirement is 64 UCAS points
BTEC National Diploma/QCF Extended Diploma	Minimum grade of MPP which is equivalent to 64 UCAS points from a Computing or Maths subject
Access to Higher Education at level 3	Access to HE Diploma with a minimum Pass grade overall from a Computing or Maths subject
Apprenticeships	Level 3 apprenticeship pass in associated subject
Welsh Baccalaureate	Minimum grade C at level 3 including a Computing or Maths subject
Scottish Qualifications Authority	National Certificate or Scottish Highers with equivalent to 64 UCAS points in Computing or Maths based subject
Irish Leaving Certificate	64 UCAS points from a minimum of 3 Higher Level grades including Computing or Maths subject
APEL / APCL possibilities	Prior experience within the industry or partial completion of other relevant level 4/5 qualifications will be considered on an individual basis
Disclosure and Barring Service Required	None required
Disability Service Arrangements	The Disabled Students Allowance (DSA) advisor will support your application and assessment of needs. Upon receipt of your Needs Assessment, all reasonable adjustments and support will be put in place to support your studies. In addition, there is a counsellor on campus with whom appointments can be made directly.

10. Progression Routes

The agreed progression route is the Higher National Diploma in Computing at Exeter College.

11. Non-Standard Regulations

N/A

12. Transitional Arrangements

N/A

Appendices

- Programme Specification Mapping (UG) – core/elective modules

Appendix 1: Programme Specification Mapping (UG): module contribution to the meeting of Award Learning Outcomes

Core Modules		Award Learning Outcomes contributed to (for more information see Section 8)														Compensation Y/N	Assessment Element(s) and weightings [use KIS definition] E1- exam E2 – clinical exam T1- test C1- coursework A1 – generic assessment P1 - practical
		Knowledge & understanding			Cognitive & intellectual skills			Key & transferable skills			Employment related skills			Practical skills				
		1	2	3	1	2	3	1	2	3	1	2	3	1	2	3		
Level 4	**EXCE1157**	X		X	X	X			X	X							Y	C1 – 50% T1 – 50%
	EXCE1158	X			X	X			X	X				X		X	Y	C1 – 50% P1 – 50%
	EXCE1159		X		X	X		X	X					X	X	X	Y	C1 – 80% T1 – 20%
	EXCE1160		X	X	X			X				X		X	X		Y	C1 – 100%
	EXCE1161		X		X	X					X	X		X	X		Y	C1 – 100%
	EXCE1162	X	X		X						X			X			Y	P1 – 60% T1 – 40%
Level 4 Los																		
Confirmed Award LOs																		

Module Records

UNIVERSITY OF PLYMOUTH MODULE RECORD

SECTION A: DEFINITIVE MODULE RECORD. ***Proposed changes must be submitted via Faculty/AP Quality Procedures for approval and issue of new module code.***

MODULE CODE: EXCE1157	**MODULE TITLE:** Computational Thinking	
CREDITS: 20	**FHEQ LEVEL:** 4	**HECOS CODE:** 100367 Computer and Information Technology
PRE-REQUISITES: None	**CO-REQUISITES:** None	**COMPENSATABLE:** Yes

SHORT MODULE DESCRIPTOR: *(max 425 characters)*

This module covers the basic mathematical concepts that underpin much of computing practice. It is designed to be a practitioner's guide, emphasising the practical application and implications of the theory.

ELEMENTS OF ASSESSMENT *[Use HESA KIS definitions] – see Definitions of Elements and Components of Assessment*					
T1 (Test)	50%	**C1** (Coursework)	50%	**P1 (**Practical**)**	0%

SUBJECT ASSESSMENT PANEL to which module should be linked: Computing

Professional body minimum pass mark requirement: N/A

MODULE AIMS:

- To introduce number theory in practical computing scenarios.
- To examine simple probability theory and probability distributions.
- To examine graphical solutions using geometry and vector methods
- To implement matrix methods to contextualised examples relevant to computing
- To introduce abstract data types, concrete data structures and algorithms

ASSESSED LEARNING OUTCOMES: (additional guidance below; please refer to the Programme Specification for relevant award/ programme Learning Outcomes.

At the end of the module the learner will be expected to be able to:

Assessed Module Learning Outcomes	Award/ Programme Learning Outcomes contributed to
1. Demonstrate an understanding of how applied number theory can impact practical computing scenarios and how to communicate in a method appropriate to the scenario and audience.	8.1.1, 8.3.3
2. Analyse events using probability theory and probability distributions, applying this to business activities and decision making.	8.1.3
3. Demonstrate the application in graphical examples using geometry and vector methods in applications.	8.2.1
4. Use, apply and evaluate abstract data types, and matrix manipulation methods, concrete data structures and algorithms	8.2.2, 8.3.2

DATE OF APPROVAL: 03/09/2020	**FACULTY/OFFICE: Academic Partnerships**
DATE OF IMPLEMENTATION: 01/09/2020	**SCHOOL/PARTNER: Exeter College**
DATE(S) OF APPROVED CHANGE: XX/XX/XXXX	**TRIMESTER: 1**

Notes:

Additional Guidance for Learning Outcomes:

To ensure that the module is pitched at the right level check your intended learning outcomes against the following nationally agreed standards

- Framework for Higher Education Qualifications http://www.qaa.ac.uk/publications/information-and-guidance/publication/?PubID=2718#.VW2INtJVikp
- Subject benchmark statements http://www.qaa.ac.uk/ASSURINGSTANDARDSANDQUALITY/SUBJECT-GUIDANCE/Pages/Subject-benchmark-statements.aspx
- Professional, regulatory and statutory (PSRB) accreditation requirements (where necessary e.g., health and social care, medicine, engineering, psychology, architecture, teaching, law)
- QAA Quality Code http://www.qaa.ac.uk/AssuringStandardsAndQuality/quality-code/Pages/default.aspx

SECTION B: DETAILS OF TEACHING, LEARNING AND ASSESSMENT

Items in this section must be considered annually and amended as appropriate, in conjunction with the Module Review Process. Some parts of this page may be used in the KIS return and published on the extranet as a guide for prospective students. Further details for current students should be provided in module guidance notes.

ACADEMIC YEAR: 2024-25 **NATIONAL COST CENTRE:** 121
MODULE LEADER: David Stedman **OTHER MODULE STAFF:** None

Summary of Module Content

Number theory: Converting between number bases (Denary, Binary, Octal, Duodecimal and Hexadecimal). Prime numbers, Pythagorean triples and Mersenne primes. Greatest common divisors and least common multiples. Modular arithmetic operations. Sequences and series: Expressing a sequence recursively. Arithmetic and geometric progression theory and application. Summation of series and the sum to infinity
Probability theory: Calculating conditional probability from independent trials. Random variables and the expectation of events. Applying probability calculations to hashing and load balancing. Probability distributions: Discrete probability distribution of the binomial distribution. Continuous probability distribution of the normal (Gaussian) distribution.
Geometry: Cartesian co-ordinate systems in two dimensions. Representing lines and simple shapes using co-ordinates. The co-ordinate system used in programming output device. Vectors: Introducing vector concepts. Cartesian and polar representations of a vector. Scaling shapes described by vector co-ordinates.
Introduction to matrices and matrix notation: Using matrices to represent ordered data and the relationship with program variable arrays. The process for addition, subtraction and multiplication of matrices. Calculating the determinant and inverse of a matrix. Application of matrices to vector transformations and rotation, maps and graphs.
Data structures: Array; set; stack; queue; list; tree; types e.g., active, passive, recursive.
Algorithm types: Recursive, backtracking, dynamic, divide & conquer, branch & bound, greedy, randomised, brute force.
Algorithms: Sort; insertion, quick, merge, heap, bucket, selection; search linear, binary, binary

SUMMARY OF TEACHING AND LEARNING *[Use HESA KIS definitions]*		
Scheduled Activities	**Hours**	**Comments/Additional Information (briefly explain activities, including formative assessment opportunities)**
Lecture	25	Delivery of module content by the lecturer in Computing lab with engagement from learners
Practical Classes and Workshops	20	Time spent in the computer labs/classrooms
Guided Independent Study	155	Students expected to develop mathematical and logic skills
Total	**200**	**(NB: 1 credit = 10 hours of learning; 10 credits = 100 hours, etc.)**

SUMMATIVE ASSESSMENT

Element Category	Component Name	Component Weighting
Test	Timed in class assessment 1.5 hr using relevant data methods (LO3,4,5)	100%
Coursework	Report on computational theory (LO1,2)	100%

REFERRAL ASSESSMENT

Element Category	Component Name	Component Weighting
Coursework (in lieu of the original assessment)	Report on data methods with calculations	100%
Coursework	Report on computational theory	100%

To be completed when presented for Minor Change approval and/or annually updated	
Updated by: David Stedman Date: September 2024	**Approved by**: Chris Morris Date: September 2024

Recommended Texts and Sources:

The Art of Statistics: How to Learn from Data by David Spiegelhalter 2019

Foundation Mathematics for Computer Science: A Visual Approach Paperback – 14 Sep 2015
by John Vince 2015, Springer

Schaum's Outline of Essential Computer Mathematics (Schaum's Outline Series) Paperback – 16 May 1982
by Seymour Lipschutz

UNIVERSITY OF PLYMOUTH MODULE RECORD

SECTION A: DEFINITIVE MODULE RECORD. ***Proposed changes must be submitted via Faculty/AP Quality Procedures for approval and issue of new module code.***

MODULE CODE: EXCE1158	**MODULE TITLE:** Computer Systems & Control	
CREDITS: 20	**FHEQ LEVEL:** 4	**HECOS CODE:** 100367 Computer and Information Technology
PRE-REQUISITES: None	**CO-REQUISITES:** None	**COMPENSATABLE:** Yes

SHORT MODULE DESCRIPTOR: *(max 425 characters)*
Introduces the hardware components of modern systems, linked to logic, low level programming and simple control mechanisms. This module will identify and detail the essential components of a processor-based system, applying them to simple physical control systems using appropriate languages and a range of software operating systems.

ELEMENTS OF ASSESSMENT *[Use HESA KIS definitions] – see Definitions of Elements and Components of Assessment*					
T1 (Test)	0%	**C1** (Coursework)	50%	**P1 (**Practical**)**	50%

SUBJECT ASSESSMENT PANEL to which module should be linked: Computing

Professional body minimum pass mark requirement: N/A

MODULE AIMS:

- Enable learners to understand the general purpose and operation of components in processor-based systems.
- Write both high and low-level code for processor-based control systems
- Test and operate code in devices such as small robots and control systems
- Understand the software requirements of embedded system
- Demonstrate diagnostic and troubleshooting skills to solve hardware, software and networking related issues.

ASSESSED LEARNING OUTCOMES: (additional guidance below; please refer to the Programme Specification for relevant award/ programme Learning Outcomes.

At the end of the module the learner will be expected to be able to:

Assessed Module Learning Outcomes	Award/ Programme Learning Outcomes contributed to
1. Explain the interactions between hardware components and the subsystems used in a computer system	8.1.1
2. Test code, operate systems and review design outcomes of a small project	8.2.1, 8.5.1
3. Evaluate user feedback and test results from multiple iterations of the prototype and end user testing.	8.2.2, 8.5.3
4. Present and demonstrate a programmed control system using language appropriate to the scenario and audience.	8.3.2, 8.3.3

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DATE(S) OF APPROVED CHANGE: XX/XX/XXXX	**TRIMESTER: 3**

Notes:

Additional Guidance for Learning Outcomes:

To ensure that the module is pitched at the right level check your intended learning outcomes against the following nationally agreed standards

- Framework for Higher Education Qualifications http://www.qaa.ac.uk/publications/information-and-guidance/publication/?PubID=2718#.VW2INtJVikp
- Subject benchmark statements http://www.qaa.ac.uk/ASSURINGSTANDARDSANDQUALITY/SUBJECT-GUIDANCE/Pages/Subject-benchmark-statements.aspx
- Professional, regulatory and statutory (PSRB) accreditation requirements (where necessary e.g., health and social care, medicine, engineering, psychology, architecture, teaching, law)
- QAA Quality Code http://www.qaa.ac.uk/AssuringStandardsAndQuality/quality-code/Pages/default.aspx

SECTION B: DETAILS OF TEACHING, LEARNING AND ASSESSMENT

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ACADEMIC YEAR: 2024-25 **NATIONAL COST CENTRE:** 121
MODULE LEADER: David Stedman **OTHER MODULE STAFF:** None

Summary of Module Content

HW components of modern systems, linked to logic, low level programming and simple control mechanisms.
essential components of a processor-based system, applying them to controlling simple physical control systems using appropriate languages.
use of robotic systems such as Arduino, PiBot etc, with languages e.g., C to produce code to be embedded in those systems.
Boolean logic applied to sensors and control systems
production of working prototypes.

SUMMARY OF TEACHING AND LEARNING ***[Use HESA KIS definitions]***		
Scheduled Activities	**Hours**	**Comments/Additional Information (briefly explain activities, including formative assessment opportunities)**
Lecture	25	Delivery of module content by the lecturer in Computing lab with engagement from learners
Practical Classes and Workshops	20	Time spent in the computer labs
Guided Independent Study	155	Students expected to develop skills in coding
Total	**200**	**(NB: 1 credit = 10 hours of learning; 10 credits = 100 hours, etc.)**

SUMMATIVE ASSESSMENT

Element Category	Component Name	Component Weighting
Practical	In class-controlled activity – robotics coding and testing (LO2,3,4) Evaluation (LO3)	80% 20%
Coursework	Report on computer systems theory (LO1)	100%

REFERRAL ASSESSMENT

Element Category	Component Name	Component Weighting
Coursework (in lieu of the original assessment)	Annotated diagram and supporting notes (LO2,3,4)	100%
Coursework	Written Report (LO1)	100%

To be completed when presented for Minor Change approval and/or annually updated	
Updated by: David Stedman Date: September 2024	**Approved by**: Chris Morris Date: September 2024

References and texts

The Vidstrom Labs Guide to Arduino Assembly Language Programming Paperback – 28 Aug 2019, Arne Vidstrom

30 Arduino Projects for the Evil Genius, Second Edition 2nd Edition, Simon Monk

The AVR Microcontroller and Embedded Systems Using Assembly and C: Using Arduino Uno and Atmel Studio Paperback – 13 Nov 2017, Naimi , Naimi and Ali Mazidi

UNIVERSITY OF PLYMOUTH MODULE RECORD

SECTION A: DEFINITIVE MODULE RECORD. ***Proposed changes must be submitted via Faculty/AP Quality Procedures for approval and issue of new module code.***

MODULE CODE: EXCE1159	**MODULE TITLE:** Databases and Information Systems	
CREDITS: 20	**FHEQ LEVEL:** 4	**HECOS CODE:** 100367 Computer and Information Technology
PRE-REQUISITES: None	**CO-REQUISITES:** None	**COMPENSATABLE:** Yes

SHORT MODULE DESCRIPTOR: *(max 425 characters)*

This module addresses the theoretical and practical design and use of information systems in a variety of contexts from small businesses to large scale operations. The use of database software will include an understanding of the structure and creation of relational database applications, as well as their applications, hosting, management and security.

ELEMENTS OF ASSESSMENT *[Use HESA KIS definitions] – see Definitions of Elements and Components of Assessment*					
T1 (Test)	20%	**C1** (Coursework)	80%	**P1** (Practical**)**	0%

SUBJECT ASSESSMENT PANEL to which module should be linked: Computing

Professional body minimum pass mark requirement: N/A

MODULE AIMS:

- To provide an introduction to databases, their use, advantages and disadvantages.
- To examine the use of management information systems.
- To facilitate the development of practical expertise in the design, creation, maintenance and manipulation, of databases.
- To implement theoretical concepts in a practical environment.

ASSESSED LEARNING OUTCOMES: (additional guidance below; please refer to the Programme Specification for relevant award/ programme Learning Outcomes.

At the end of the module the learner will be expected to be able to:

Assessed Module Learning Outcomes	Award/ Programme Learning Outcomes contributed to
1. Apply a methodical approach to systems analysis on given information-processing system and recognise the need for the collection of information in order to develop simple information-processing systems.	8.1.2, 8.3.1
2. Develop simple models of information-processing systems and a prototype relational database to a given specification.	8.2.1
3. Recognise the need for the interactive use of databases to resolve given information-processing scenarios.	8.2.2, 8.3.1, 8.3.2
4. Apply the more advanced features to acquire information from simple relational databases.	8.5.1, 8.5.2, 8.5.3

DATE OF APPROVAL: 03/09/2020	**FACULTY/OFFICE: Academic Partnerships**
DATE OF IMPLEMENTATION: 01/09/2020	**SCHOOL/PARTNER: Exeter College**
DATE(S) OF APPROVED CHANGE: XX/XX/XXXX	**SEMESTER: Trimester 2**

Notes:

Additional Guidance for Learning Outcomes:

To ensure that the module is pitched at the right level check your intended learning outcomes against the following nationally agreed standards

- Framework for Higher Education Qualifications http://www.qaa.ac.uk/publications/information-and-guidance/publication/?PubID=2718#.VW2INtJVikp
- Subject benchmark statements http://www.qaa.ac.uk/ASSURINGSTANDARDSANDQUALITY/SUBJECT-GUIDANCE/Pages/Subject-benchmark-statements.aspx
- Professional, regulatory and statutory (PSRB) accreditation requirements (where necessary e.g., health and social care, medicine, engineering, psychology, architecture, teaching, law)
- QAA Quality Code http://www.qaa.ac.uk/AssuringStandardsAndQuality/quality-code/Pages/default.aspx

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ACADEMIC YEAR: 2024-25 **NATIONAL COST CENTRE:** 121
MODULE LEADER: Danni Potter **OTHER MODULE STAFF:** N/A

Summary of Module Content

- The steps involved with the creation of an information processing system.
- Organisational and legal considerations.
- Normalisation and Entity Relationship Diagrams.
- To introduce databases, their use, advantages and disadvantages.
- Use of a database application package to create and maintain a relational database.
- Design and application of a user interface for access to data in a database.
- Design of reports for acquiring information from a database.
- Design and use of queries for accessing data from the database

SUMMARY OF TEACHING AND LEARNING *[Use HESA KIS definitions]*		
Scheduled Activities	**Hours**	**Comments/Additional Information (briefly explain activities, including formative assessment opportunities)**
Lecture	25	Delivery of module content by the lecturer in Computing lab with engagement from learners
Practical Classes and Workshops	20	Time spent in the computer labs
Guided Independent Study	155	Students expected to develop skills in Access/SQL
Total	**200**	**(NB: 1 credit = 10 hours of learning; 10 credits = 100 hours, etc.)**

SUMMATIVE ASSESSMENT

Element Category	Component Name	Component Weighting
Test	Timed in class assessment – database theory (LO1)	100%
Coursework	Database product and supporting report (LO1-4)	100%

REFERRAL ASSESSMENT

Element Category	Component Name	Component Weighting
Coursework (in lieu of the original assessment)	Online portfolio of evidence (LO1)	100%
Coursework	Written Report (LO1-4)	100%

To be completed when presented for Minor Change approval and/or annually updated	
Updated by: Danni Potter Date: September 2024	**Approved by**: Chris Morris Date: September 2024

UNIVERSITY OF PLYMOUTH MODULE RECORD

SECTION A: DEFINITIVE MODULE RECORD. ***Proposed changes must be submitted via Faculty/AP Quality Procedures for approval and issue of new module code.***

MODULE CODE: EXCE1160	**MODULE TITLE:** Business Intelligence & Big Data	
CREDITS: 20	**FHEQ LEVEL:** 4	**HECOS CODE:** 100367 Computer and Information Technology
PRE-REQUISITES: None	**CO-REQUISITES:** None	**COMPENSATABLE:** Yes

SHORT MODULE DESCRIPTOR: *(max 425 characters)*

This module provides students with the skills to contribute to the design and development of data systems. It focuses on modern engineering methods, tools and systems used for statistical computing when conducting predictive and strict analytics. Also, students will also learn how organisations use Power BI as a tool for undertaking descriptive analytics through Business Intelligence.

ELEMENTS OF ASSESSMENT *[Use HESA KIS definitions] – see Definitions of Elements and Components of Assessment*					
T1 (Test)	0%	**C1** (Coursework)	100%	**P1 (**Practical**)**	0%

SUBJECT ASSESSMENT PANEL to which module should be linked: Computing

Professional body minimum pass mark requirement: N/A

MODULE AIMS:

- Be able to conduct an audit and analysis of the Business Intelligence requirements of an organisation and undertake the necessary planning involved.
- To gain the theoretical skills and in-depth understanding needed to pursue a future within data analytics

ASSESSED LEARNING OUTCOMES: (additional guidance below; please refer to the Programme Specification for relevant award/ programme Learning Outcomes.

At the end of the module the learner will be expected to be able to:

Assessed Module Learning Outcomes	Award/ Programme Learning Outcomes contributed to
1. Demonstrate a clear understanding of the common statistical analysis techniques used to manipulate data.	8.1.2, 8.1.3, 8.3.1
2 Demonstrate an understanding of the use of code and scripting in data analysis.	8.2.1
3 Critically evaluate technologies for the development of data applications.	8.5.2
4 Conduct an audit and analysis of the BI requirements of an organisation and undertake the necessary planning involved in a BI.	8.3.1, 8.4.2, 8.5.1

DATE OF APPROVAL: 03/09/2020	**FACULTY/OFFICE: Academic Partnerships**
DATE OF IMPLEMENTATION: 01/09/2020	**SCHOOL/PARTNER: Exeter College**
DATE(S) OF APPROVED CHANGE: XX/XX/XXXX	**SEMESTER: Trimester 2**

Notes:

Additional Guidance for Learning Outcomes:

To ensure that the module is pitched at the right level check your intended learning outcomes against the following nationally agreed standards

- Framework for Higher Education Qualifications http://www.qaa.ac.uk/publications/information-and-guidance/publication/?PubID=2718#.VW2INtJVikp
- Subject benchmark statements http://www.qaa.ac.uk/ASSURINGSTANDARDSANDQUALITY/SUBJECT-GUIDANCE/Pages/Subject-benchmark-statements.aspx
- Professional, regulatory and statutory (PSRB) accreditation requirements (where necessary e.g., health and social care, medicine, engineering, psychology, architecture, teaching, law)
- QAA Quality Code http://www.qaa.ac.uk/AssuringStandardsAndQuality/quality-code/Pages/default.aspx

SECTION B: DETAILS OF TEACHING, LEARNING AND ASSESSMENT

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ACADEMIC YEAR: 2024-25 **NATIONAL COST CENTRE:** 121
MODULE LEADER: Chris Morris **OTHER MODULE STAFF:** None

Summary of Module Content

Introductory statistics: Linear regression, plotting functions, discrete and continuous data
Degrees of confidence, correlation, standard variation, clustering, correlation,
Representing data
Optimisation
Probability theory
Business data systems
Large data bases
Statistical significance and hypothesis testing
Big data case studies
What can go wrong
Data ethics – legislation – GDPR
Using a statistical IDE
Bayesian
Tools including R, Anaconda, Python and Power BI

SUMMARY OF TEACHING AND LEARNING *[Use HESA KIS definitions]*		
Scheduled Activities	**Hours**	**Comments/Additional Information (briefly explain activities, including formative assessment opportunities)**
Lecture	25	Delivery of module content by the lecturer in Computing lab with engagement from learners
Skills Labs	20	Using spreadsheets, packages like Power BI, Anaconda, Python
Guided Independent Study	155	Tutor support and individual study
Total	**200**	**(NB: 1 credit = 10 hours of learning; 10 credits = 100 hours, etc.)**

SUMMATIVE ASSESSMENT

Element Category	Component Name	Component Weighting
Coursework	Written report – audit of BI system (LO1-4)	100%

REFERRAL ASSESSMENT

Element Category	Component Name	Component Weighting
Coursework	Written Report (LO1-4)	100%

To be completed when presented for Minor Change approval and/or annually updated	
Updated by: David Stedman Date: September 2024	**Approved by**: Chris Morris Date: September 2024

UNIVERSITY OF PLYMOUTH MODULE RECORD

SECTION A: DEFINITIVE MODULE RECORD. ***Proposed changes must be submitted via Faculty/AP Quality Procedures for approval and issue of new module code.***

MODULE CODE: EXCE1161	**MODULE TITLE:** Software Development	
CREDITS: 20	**FHEQ LEVEL:** 4	**HECOS CODE:** 100367 Computer and Information Technology
PRE-REQUISITES: None	**CO-REQUISITES:** None	**COMPENSATABLE:** Yes

SHORT MODULE DESCRIPTOR: *(max 425 characters)*

In this module students develop the ability to solve problems algorithmically. Procedural, object oriented, and event-driven paradigms are studied and applied to create a program to carry out an operation. They will implement and debug applications. The process of developing an application using the software lifecycle will be explored – comparing and contrasting the various approaches.

ELEMENTS OF ASSESSMENT *[Use HESA KIS definitions] – see Definitions of Elements and Components of Assessment*					
T1 (Test)	0%	**C1** (Coursework)	100%	**P1 (**Practical**)**	0%

SUBJECT ASSESSMENT PANEL to which module should be linked: Computing

Professional body minimum pass mark requirement: N/A

MODULE AIMS:

- To communicate sound practice in design, construction and testing of programs.
- To develop proficiency in programming structures and ability to understand and debug existing code.

ASSESSED LEARNING OUTCOMES: (additional guidance below; please refer to the Programme Specification for relevant award/ programme Learning Outcomes.

At the end of the module the learner will be expected to be able to:

Assessed Module Learning Outcomes	Award/ Programme Learning Outcomes contributed to
1. Produce appropriate design documentation	8.1.2
2. Produce appropriate testing plans and records	8.4.2
3. Select and apply appropriate programming paradigms in the resolution of a given problem.	8.5.1, 8.5.2
4. Demonstrate the analysis and review of existing code then debug making use of version control.	8.2.1, 8.2.2,8.4.1

DATE OF APPROVAL: 03/09/2020	**FACULTY/OFFICE: Academic Partnerships**
DATE OF IMPLEMENTATION: 01/09/2020	**SCHOOL/PARTNER: Exeter College**
DATE(S) OF APPROVED CHANGE: XX/XX/XXXX	**SEMESTER: Trimester 1**

Notes:

Additional Guidance for Learning Outcomes:

To ensure that the module is pitched at the right level check your intended learning outcomes against the following nationally agreed standards

- Framework for Higher Education Qualifications http://www.qaa.ac.uk/docs/qaa/quality-code/qualifications-frameworks.pdf
- Subject benchmark statements https://www.qaa.ac.uk/quality-code/subject-benchmark-statements
- Professional, regulatory and statutory (PSRB) accreditation requirements (where necessary e.g., health and social care, medicine, engineering, psychology, architecture, teaching, law)
- QAA Quality Code https://www.qaa.ac.uk/quality-code

SECTION B: DETAILS OF TEACHING, LEARNING AND ASSESSMENT

Items in this section must be considered annually and amended as appropriate, in conjunction with the Module Review Process. Some parts of this page may be used in the KIS return and published on the extranet as a guide for prospective students. Further details for current students should be provided in module guidance notes.

ACADEMIC YEAR: 2024-25 **NATIONAL COST CENTRE:** 121
MODULE LEADER: Paul Hunter **OTHER MODULE STAFF:** N/A

Summary of Module Content

Programming paradigms
Coding: constants/variables, data types, methods, input/output, selection, iteration, scope, parameter passing, classes and events.
GUI programming
Debugging
IDE components
Software development lifecycle
Development methodologies e.g., Agile, DevOps etc.
Coding standards
The generation process of code; the roles of the pre-processor, compiler and linker, interpreter.
Variables, declarations and assignment
Collections e.g., Array, List, Dictionary
String and file handling

SUMMARY OF TEACHING AND LEARNING ***[Use HESA KIS definitions]***		
Scheduled Activities	**Hours**	**Comments/Additional Information (briefly explain activities, including formative assessment opportunities)**
Lecture	25	Delivery of module content by the lecturer in Computing lab with engagement from learners
Practical Session	20	Lab sessions
Guided Independent Study	155	Personal research
Total	**200**	**(NB: 1 credit = 10 hours of learning; 10 credits = 100 hours, etc.)**

SUMMATIVE ASSESSMENT

Element Category	Component Name	Component Weighting
Coursework	Programming product (LO1-3) Evaluation of product and process (LO1-3) Practical in class followed by written report (LO4-5)	50% 25% 25%

REFERRAL ASSESSMENT

Element Category	Component Name	Component Weighting
Coursework	Programming product and evaluation (LO1-4)	100%

To be completed when presented for Minor Change approval and/or annually updated	
Updated by: Paul Hunter Date: September 2024	**Approved by**: Chris Morris Date: September 2024

UNIVERSITY OF PLYMOUTH MODULE RECORD

SECTION A: DEFINITIVE MODULE RECORD. ***Proposed changes must be submitted via Faculty/AP Quality Procedures for approval and issue of new module code.***

MODULE CODE: EXCE1162	**MODULE TITLE:** Fundamentals of Computer Networking	
CREDITS: 20	**FHEQ LEVEL:** 4	**HECOS CODE:** 100367 Computer and Information Technology
PRE-REQUISITES: None	**CO-REQUISITES:** None	**COMPENSATABLE:** Yes

SHORT MODULE DESCRIPTOR: *(max 425 characters)*

Networking is fundamental to modern computer systems. Students will learn about standards, protocols and topologies on wired and wireless networks and the hardware and software that implement them. Students will have the opportunity to apply the skills learned to network management tasks commonly occurring in the workplace. Teaching will be a combination of classroom theory sessions together with practical activities carried out in the Faculty networking lab.

ELEMENTS OF ASSESSMENT *[Use HESA KIS definitions] – see Definitions of Elements and Components of Assessment*			
T1 (Test)	40%	**P1** (Practical**)**	60%

SUBJECT ASSESSMENT PANEL to which module should be linked: Computing

Professional body minimum pass mark requirement: N/A

MODULE AIMS:

- Standards and protocols, specifically TCP/IP and related protocols
- Topologies, wired and wireless networking, cabling etc.
- Network hardware and software inc. NICs, switches, routers, firewalls
- Troubleshooting and diagnostic tools
- Network management inc. directory, DNS, DHCP, remote access

ASSESSED LEARNING OUTCOMES: (additional guidance below; please refer to the Programme Specification for relevant award/ programme Learning Outcomes.

At the end of the module the learner will be expected to be able to:

Assessed Module Learning Outcomes	Award/ Programme Learning Outcomes contributed to
1. Understand and explain networking principles and related protocols	8.1.1
2. Explain and evaluate network hardware and software	8.1.2
3. Diagnose and resolve network faults	8.2.1
4. Setup and manage network services	8.4.1, 8.5.1

DATE OF APPROVAL: 03/09/2020	**FACULTY/OFFICE: Academic Partnerships**
DATE OF IMPLEMENTATION: 01/09/2020	**SCHOOL/PARTNER: Exeter College**
DATE(S) OF APPROVED CHANGE: XX/XX/XXXX	**SEMESTER: Trimester 3**

Notes:

Additional Guidance for Learning Outcomes:

To ensure that the module is pitched at the right level check your intended learning outcomes against the following nationally agreed standards

- Framework for Higher Education Qualifications http://www.qaa.ac.uk/publications/information-and-guidance/publication/?PubID=2718#.VW2INtJVikp
- Subject benchmark statements http://www.qaa.ac.uk/ASSURINGSTANDARDSANDQUALITY/SUBJECT-GUIDANCE/Pages/Subject-benchmark-statements.aspx
- Professional, regulatory and statutory (PSRB) accreditation requirements (where necessary e.g., health and social care, medicine, engineering, psychology, architecture, teaching, law)
- QAA Quality Code http://www.qaa.ac.uk/AssuringStandardsAndQuality/quality-code/Pages/default.aspx

SECTION B: DETAILS OF TEACHING, LEARNING AND ASSESSMENT

Items in this section must be considered annually and amended as appropriate, in conjunction with the Module Review Process. Some parts of this page may be used in the KIS return and published on the extranet as a guide for prospective students. Further details for current students should be provided in module guidance notes.

ACADEMIC YEAR: 2024-25 **NATIONAL COST CENTRE:** 121
MODULE LEADER: Chris Hill **OTHER MODULE STAFF:** None

Summary of Module Content

- Features and benefits of networking
- Types of networks
- Network models, specifically TCP/IP and relation to OSI model; IPv4, IPv6
- Standards, e.g., IEEE 802.3, 802,11
- Topologies and Protocols
- Network devices and Network cabling
- Network software, e.g., client OS, server OS
- Network services, e.g., directory, DNS, DHCP, mail, web, ftp, database, terminal services
- Network design
- Network tools, e.g., ping, ipconfig, tracert, route, telnet, SSH
- Cabling e.g., RJ45 straight through, crossover
- Layer 1 and layer 2 faults and diagnosis
- Packet tracers, e.g., Wireshark
- Installing network hardware and software
- Configuring hardware and software, e.g., virtual networks, IP addressing, DHCP, DNS, VPN
- Managing users inc. user profiles, groups, security policies
- Sharing resources, e.g., files and folders, devices
- Managing network applications
- Network monitoring, performance monitoring
- Firewall configuration and intrusion detection

SUMMARY OF TEACHING AND LEARNING ***[Use HESA KIS definitions]***		
Scheduled Activities	**Hours**	**Comments/Additional Information (briefly explain activities, including formative assessment opportunities)**
Lectures	40	Delivery of module content by the lecturer in Computing lab with engagement from learners
Seminars	10	Guest speakers, external events
Practical assessment	10	Completion of practical assessments in networking lab
Self-directed study	140	Students to self-study and complete ungraded activities assignments in own time
Total	**200**	**(NB: 1 credit = 10 hours of learning; 10 credits = 100 hours, etc.)**

SUMMATIVE ASSESSMENT

Element Category	Component Name	Component Weighting
Test	Time controlled test on networks (LO1-3)	100%
Practical	In class configuration of network systems (LO1-4)	100%

REFERRAL ASSESSMENT

Element Category	Component Name	Component Weighting
Coursework (In lieu of original assessments)	Portfolio of practical activities to incorporate activities for T1 (LO1-3)	100%
Coursework (In lieu of original assessments)	Portfolio of practical activities to incorporate activities for P1 (LO1-4)	100%

To be completed when presented for Minor Change approval and/or annually updated	
Updated by: David Stedman Date: September 2024	**Approved by**: Chris Morris Date: September 2024

References and resources

Packet Tracer software – e.g., Wireshark

Circuit simulation e.g., CISCO Packet Tracer

Network Laboratory – Exeter College

CCNA Routing and Switching 200-125 Official Cert Guide Library

Computer Networking: A Top-Down Approach, Global Edition Paperback – 23 Aug 2016
by James Kurose (Author), Keith Ross (Author)

Cabling: The Complete Guide to Copper and Fiber-Optic Networking Paperback – 4 Apr 2014
by Bill Woodward (Author)