



Programme Specification

Cyber Security and Digital Forensics [Frenchay]

Version: 2022-23, v1.0, 12 Feb 2024

Contents

Programme Specification	1
Section 1: Key Programme Details	2
Part A: Programme Information	2
Section 2: Programme Overview, Aims and Learning Outcomes	2
Part A: Programme Overview, Aims and Learning Outcomes	3
Part B: Programme Structure.....	8
Part C: Higher Education Achievement Record (HEAR) Synopsis	11
Part D: External Reference Points and Benchmarks	11
Part E: Regulations	13

Section 1: Key Programme Details

Part A: Programme Information

Programme title: Cyber Security and Digital Forensics [Frenchay]

Highest award: BSc (Hons) Cyber Security and Digital Forensics

Interim award: BSc Cyber Security and Digital Forensics

Interim award: DipHE Cyber Security and Digital Forensics

Interim award: CertHE Cyber Security and Digital Forensics

Awarding institution: UWE Bristol

Teaching institutions: UWE Bristol

Study abroad: Yes

Year abroad: Yes

Sandwich year: Yes

Credit recognition: No

School responsible for the programme: FET Dept of Computer Sci & Creative Tech, Faculty of Environment & Technology

Professional, statutory or regulatory bodies:

British Computer Society (BCS)

Modes of delivery: Full-time, Sandwich

Entry requirements: For the current entry requirements see the UWE public website.

For implementation from: 01 September 2020

Programme code: G4HE00

Section 2: Programme Overview, Aims and Learning Outcomes

Part A: Programme Overview, Aims and Learning Outcomes

Overview: The general aims of the programme are:

To prepare students for careers in computer security and computer crime-investigation (e.g. 'forensic technician')

To develop problem-solving, communication and other transferable skills applicable to a variety of careers

To prepare students for study for higher degrees in related subjects

Features of the programme:

Educational Aims: The specific aims of the programme are:

To develop knowledge of computer hardware and software systems

To provide an understanding of applicable law, court procedure and the role of the expert witness

To introduce a variety of approaches to both the analysis of the security requirements of computer systems and the investigation of computer crime

Programme Learning Outcomes:

On successful completion of this programme graduates will achieve the following learning outcomes.

Knowledge and Understanding

- A1. Computer systems and networks Trusted computing base, threats and security policy. Computer security mechanisms in networks and computers at various layers and levels. Security technology innovations.

- A2. Information, data and its representation and organisation in computer systems.
- A3. National legal system and court procedure. Skills and responsibilities of a forensic computing practitioner and expert witness.
- A4. Law pertaining to computer crime and digital evidence and its investigation and legal and commercial aspects of Computer Security and Forensics.
- A5. Security management. Defining, modelling and describing the concepts of trust and security policy. Securing access to services and applications from various devices.
- A6. Tools and techniques for investigating computer crime such as data mining and profiling.

Intellectual Skills

- B1. Critical Thinking
- B2. Analysis
- B3. Synthesis of different types of information
- B4. Evaluation
- B5. Problem Solving
- B6. Appreciate problem contexts
- B7. Balance conflicting objectives

Subject/Professional Practice Skills

- C1. Understand a variety of computer systems, configurations and networking topologies
- C2. Understand the professional and legal obligations of forensic computing investigations and be able to communicate with legal personnel at an appropriate level
- C3. Be able to assess a computer crime scene and formulate a strategy for securing the evidence, investigating it impartially, and produce a report in appropriate language

- C4. Describe the key security mechanisms used in access control, authentication, encryption and digital signatures and perform systems analysis in terms of computer security
- C5. Use software libraries and toolkits to implement security aware applications conforming to appropriate designs
- C6. Employ a range of tools and notations to support the activities listed above
- C7. Know the limits of their knowledge and how to extend those limits through self-managed learning

Transferable Skills and other attributes

- D1. Communication skills: to communicate orally or in writing, including, for instance, the results of technical investigations, to peers and/or to “problem owners”
- D2. Self-management skills: to manage one’s own time; to meet deadlines; to work with others having gained insights into the problems of team-based systems development
- D3. IT Skills in Context (to use software in the context of problem-solving investigations, and to interpret findings)
- D4. Problem formulation: to express problems in appropriate notations
- D5. Progression to independent learning: to gain experience of, and to develop skills in, learning independently of structured class work. For example, to develop the ability to use on-line facilities to further self-study
- D6. Comprehension of professional literature: to read and to use literature sources appropriate to the discipline to support learning activities
- D7. Working with Others: to be able to work as a member of a team; to be aware of the benefits and problems which teamwork can bring

Assessment strategy: Assessment strategy to enable the learning outcomes to be achieved and demonstrated:

Assessment strategies for Cyber Security and Digital Forensics focus on ensuring a strong technical knowledge of computing devices, skills in the use of appropriate forensic tools and abilities in devising and deploying security measures.

Student support: Pastoral Care:

At UWE the faculty offers pastoral care through its Student Advisers, a team of staff who provide comprehensive, full-time student support service on a drop-in basis or by appointment. All students on the same route are allocated to the same Adviser, who is trained to provide advice on matters commonly of concern, including regulatory and other matters; the Adviser will, when necessary, advise the student to seek advice to from other professional services including UWE's Student Services Department or from members of academic staff.

Student Support and Guidance:

At UWE, student support is provided by academic staff, usually module leaders, for all issues relating to the content and delivery of the module. At UWE, the UWE student advice services provide timely, accurate and confidential advice where necessary on all aspects of the provision including that relating to fees, assessment arrangements, late work and extenuating circumstances procedures, option choice, timetabling, examination and progression counselling and so on, as well as where and how to access the support provided by UWE. Additional support and guidance is provided by Programme Managers who are also responsible for ensuring the collection of and response to student feedback using student representatives and Programme Management Committees.

Further support is provided through the UG administration team, the admissions office, the Students Union, the central University career service and UWE's counselling provision. The UWE placements services provide extensive support for students in preparation for, as well as throughout, their study year abroad and acts both as an intermediary with partner institutions and as a recruitment service for employers.

In addition, BSc (Hons) Computer Security and Forensics will students will be encouraged to use social networking (e.g. Facebook) to interact – a strategy that has proven highly valuable on the existing UWE Forensic Computing degree. The Facebook site fosters social and academic contacts between students on all years of

the Programme and acts as an initial portal for applicants and a forum for graduates.

Students seeking employment opportunities during their studies have access to UWE's Job Shop and are also encouraged to develop valuable skills by volunteering with the Community Volunteer Service. The UWE international office provides support and organises specific activities to assist international students in adapting to life in the UK, such as an additional induction week, and the provision of specific literature to assist with their study. Further student support is provided by FET through the UG administration team, the Placements Office, the Admissions Office.

All students have a formal induction process to socialise them to university life and to provide them with the means to access the support that they may require during their study at UWE. A student handbook documents this for students. There are a range of central services offered to students. These include: Student Advice and Welfare for advice on finance and UWE's counselling provision; Career Development Unit for careers information; information technology services, student accommodation services, sports facilities, student union services, the Chaplaincy, and the Centre for Performing Arts.

Support to students with disability is offered both at the faculty level under the remit of the Disability Adviser and centrally through UWE's Disability Resource Service. The Disability Adviser coordinates academic support for disabled students in the Faculty. This includes communication of individual student's support requirements to teaching and support staff and advice and recommendations on reasonable adjustments to teaching and assessment. The Disability Adviser also coordinates staff development on disability issues and provides information and advice to academic and support staff and to students in relation to disability issues. Together, these act as a holistic service for disabled students and applicants to UWE and also support the academic and administrative staff members who work with disabled students.

The Divisional Office of the various schools is the nerve centre of the school around which all academic activities and student administration revolve. It handles a broad range of activities which include: timetabling; programme information; subject choice

counselling; subject registration; student attendance; subject exemptions; course prerequisites; student withdrawal; Student certification letters for loan application and EPF withdrawal; matters relating to fees; and general academic support.

The Career Centre provides various services and programmes to assist students in analysing their career interests, aptitudes, values and goals. It also assists students in career planning and preparation for job interviews, in addition to providing job placement services for graduating students through our network with industry and potential employers. It's services include: career counselling; career talks and workshops; resume writing and grooming seminars; career-related fairs and company trips.

An orientation programme is organised for all students prior to the start of the programme. It introduces students to the support available within the School and University, via a range of speakers (e.g. representatives from the Divisional Office, Student Services, Library, ICT, etc.). An ICT services orientation will introduce students to the email, blackboard and student portal.

International students will receive an induction from the International Office.

Part B: Programme Structure

Year 1

Full time and sandwich students must take 120 credits from the modules in Year 1.

Year 1 Compulsory Modules (Full Time and Sandwich)

Full time and sandwich students must take 120 credits from the modules in Compulsory Modules (Full Time and Sandwich).

Module Code	Module Title	Credit
UFCF93-30-1	Computer and Network Systems 2022-23	30
UFCFP4-30-1	Computer Crime and Digital Evidence 2022-23	30

UFCFTK-30-1	Introduction to Databases 2022-23	30
UFCFGL-30-1	Programming in C++ 2022-23	30

Year 2

Full time and sandwich students must take 120 credits from the modules in Year 2.

Year 2 Compulsory Modules (Full Time and Sandwich)

Full time and sandwich students must take 105 credits from the modules in Compulsory Modules (Full Time and Sandwich).

Module Code	Module Title	Credit
UJUUKM-30-2	Law, Experts and Justice 2023-24	30
UFCFWK-15-2	Operating Systems 2023-24	15
UFCFLC-30-2	Secure Computer Networks 2023-24	30
UFCFJ6-30-2	Security and Forensic Tools 2023-24	30

Year 2 Optional Modules (Full Time and Sandwich)

Full time and sandwich students must take 15 credits from the modules in Optional Modules (Full Time and Sandwich).

Module Code	Module Title	Credit
UFCFVK-15-2	Internet of Things 2023-24	15
UFCFDL-15-2	Secure Embedded Systems 2023-24	15

Year 3

Full time students must take 120 credits from the modules in Year 3.

Sandwich students must take 15 credits from the modules in Year 3.

Year 3 Compulsory Modules (Full Time)

Full time students must take 90 credits from the modules in Compulsory Modules (Full Time).

Module Code	Module Title	Credit
UFCE8A-30-3	Cyber Security Project 2024-25	30

UFCFC5-15-3	Forensic Computing Practice 2024-25	15
UFCE88-30-3	Global Landscapes of Cyber Security and Adversaries 2024-25	30
UFCFRB-15-3	Security Management in Practice 2024-25	15

Year 3 Compulsory Modules (Sandwich)

Sandwich students must take 15 credits from Compulsory Modules (Sandwich).

Module Code	Module Title	Credit
UFCE6-15-3	Professional Experience 2024-25	15

Year 3 Optional Modules (Full Time)

Full time students must take 30 credits from the modules in Optional Modules (Full Time).

Module Code	Module Title	Credit
UFCE8C-15-3	Cyber Security Consultancy 2024-25	15
UFCE87-15-3	Cyber Security Engineering 2024-25	15
UFCE8F-15-3	Digital Evidence - Crime Scene to Court Room 2024-25	15
UFCFEL-15-3	Security Data Analytics and Visualisation 2024-25	15

Year 4

Sandwich students must take 105 credits from the modules in Year 4.

Year 4 Compulsory Modules (Sandwich)

Sandwich students must take 90 credits from the modules in Compulsory Modules (Sandwich).

Module Code	Module Title	Credit
UFCE8A-30-3	Cyber Security Project 2025-26	30
UFCFC5-15-3	Forensic Computing Practice 2025-26	15

UFCE88-30-3	Global Landscapes of Cyber Security and Adversaries 2025-26	30
UFCFRB-15-3	Security Management in Practice 2025-26	15

Year 4 Optional Modules (Sandwich)

Sandwich students must take 15 credits from Optional Modules B (Sandwich).

Module Code	Module Title	Credit
UFCE8C-15-3	Cyber Security Consultancy 2025-26	15
UFCE87-15-3	Cyber Security Engineering 2025-26	15
UFCE8F-15-3	Digital Evidence - Crime Scene to Court Room 2025-26	15
UFCE8FEL-15-3	Security Data Analytics and Visualisation 2025-26	15

Part C: Higher Education Achievement Record (HEAR) Synopsis

Graduates in the field of Computer Security and Computer Forensics would be expected to have an excellent understanding of the internal operation of computers and operating and file systems. They would be able to use appropriate tools to investigate computer-based activities, deploy tools and techniques to prevent security breaches and investigate the mis-use of computer systems and other devices. As much of this work is carried out either directly in support of legal processes an understanding of appropriate legal systems and law would be expected.

Part D: External Reference Points and Benchmarks

This programme is consistent with the UWE 2020 strategy in that its focus on the practice of computer security and forensics aligns with our aim of producing practice-oriented graduates.

The partnership with Taylors helps to ensure that the programme has an inclusive and global reach. The programme will be accredited by the British Computer Society

and is therefore recognized by the professional body. In addition, the programme adopts the general approach of the department of Computer Science and Creative Technologies in including input from industry in terms both of visiting speakers and placement and work experience opportunities.

The QAA Computing and Law benchmark statements:

The QAA Subject Benchmark Statements for Computing and for Law were published in 2007, and are applicable to this programme.

The programme clearly falls into the cognate area described by the Computing benchmark. Due to the nature of Digital Forensic practice, much of the computing material is of a technical, low-level nature, with relatively little computing theory. Thus, in terms of the benchmark's high-level characterisation of Computing, the emphasis of the programme is on software, communication and interaction and practice, developed within the context of the specialised requirements of the programme. From the body of knowledge the following are considered essential to a study of Digital Forensics: Data Mining (in the context of forensic investigations); Computer Based Systems; Computer Networks; Data Structures and Algorithms, with emphasis on data structures; Distributed Computer Systems; Operating Systems; Programming Fundamentals; Security and Privacy; Web-based Computing.

The Computing Benchmark Statement also contains (section 5) statements of the standards expected of graduates at both modal and threshold levels. The team is of the view that graduates of the proposed programme will be able to meet the required standards.

The Law benchmark has been considered during the design process at the 'Law as Subsidiary' level of performance, which focuses on the development of legal skills related to some specific area (in this case Digital Forensics). Though the Statement is targeted at programmes with at least 180 credits of legal subjects, its expectations also apply to programmes such as Digital Forensics, where the legal aspects make up a relatively small, but very important component. No attempt has been made to

include all aspects of law or to provide the foundation for a legal career as such – instead the most important points of law and court procedure are covered. The aim of the design team has been to provide sufficient legal knowledge to be aware of the rules and legal system pertaining to Digital Forensics: as suggested in the Benchmark, the relevant law is treated mainly as data from which legal conclusions or opinions can be derived. It is expected that student will be able to assimilate legal information from a variety of sources and apply the knowledge acquired to computer crime investigation and security analysis.

Part E: Regulations

Approved to University Regulations and Procedures.