Module Specification

Module Summary Information

1	**Module Title**	Computer Forensics Fundamentals
2	**Module Credits**	20
3	**Module Level**	4
4	**Module Code**	CMP4275

5	**Module Overview**

This module provides an introduction to the core principles of a typical computer forensic investigation. It aims to develop a firm grounding in the underpinning knowledge and skills required to analyse and evaluate data from a computer and related data storage devices in a forensically sound manner. This module emphasises a "hands-on" approach to learning forensic computing techniques using open-source and commercial forensic tools. The module will teach you the fundamental data structures applicable to computer forensics and how various tools can be exploited to analyse these structures in a variety of case types.

The module is delivered through a truly flipped methodology, placing significant emphasis on the development of practical skills supported by blended learning and a variety of learning activities that include lectures, seminars, practice-led, self-directed and experiential learning; in person and online through Virtual Learning Environments (VLE). Each practical session comprises a series of hands-on analytical experiments to progressively unpack the more advanced aspects of the topic being investigated. All practical sessions will be hosted in the specialist Computer Forensics Laboratory, which in turn hosts a variety of the specialist hardware and software computer forensics tools.

The post session activities for each week will comprise a short formative Moodle quiz that will provide instant feedback on the theoretical material covered. For each week's lab session, there will be an accompanying video taking you step-by-step through the solutions of the practical lab exercises. In addition to the lab-based analytical experiments, each lab session will also provide you with a short set of experiments that are to be conducted on your virtual machine in your own time allowing you to explore the broader aspects of the topic being investigated during the scheduled lab session to help reinforce your learning. Where appropriate, additional surgeries may be held to provide additional guidance, support and feedback.

The assessment for this module is based on a simulated Assessment Centre exercise used by increasingly by employers, specifically in the digital forensics sector. The assessment scenario is established around a job application for a Junior Digital Forensic Analyst in a (fictitious) digital forensics service provider. The assessment strategy not only develops the core competencies in digital forensics but also enables first-year students to engage directly in a process that provides them with an academic and professional skill set upon which they can build their personal development planning (PDP) and develop their employability in the subsequent years of degree study.

6	Indicative Content

Introduction to the Computer Forensics Profession and Investigations.

Fundamentals of Cryptography.

System Authentication and Passwords

Data Storage Devices and Data Acquisition

File Signature Analysis and Validation

Data Hiding Techniques

Formal Guidelines and Regulations

7	Module Learning Outcomes On successful completion of the module, students will be able to:	
	1	Demonstrate the practical application of key principles that underlie a forensic investigation process.
	2	Identify and assess the authenticity of digitally stored computer data.
	3	Apply appropriate analytical and forensic tools in different situations.
	4	Formulate academic, personal development and career planning in the context of digital forensics.

8	Module Assessment		
Learning Outcome			
	Coursework	Exam	In-Person
1,2,3, 4	X		

9	Breakdown Learning and Teaching Activities
Learning Activities	Hours
Scheduled Learning (SL) includes lectures, practical classes and workshops, peer group learning, Graduate+, as specified in timetable	48
Directed Learning (DL) includes placements, work-based learning, external visits, on-line activity, Graduate+, peer learning, as directed on VLE	48
Private Study (PS) includes preparation for exams	104
Total Study Hours:	200