

Course Specification

Course Summary Information		
1	Course Title	MSc Data Networks and Security
2	BCU Course Code	PT0985
3	Awarding Institution	Birmingham City University
4	Teaching Institution(s) (if different from point 3)	
5	Professional Statutory or Regulatory Body (PSRB) accreditation (if applicable)	

6	Course Description
	<p>The MSc Data Networks and Security programme intends to develop your competence in using tools and techniques for configuring data networking systems, securing data networking systems and managing data networking systems in a production environment.</p> <p>What's covered in the course?</p> <p>The course is designed to cover a number of advanced topics in data network engineering, namely, network management, network security, network automation and information security. In addition, you will receive a solid grounding in research methods and project management before undertaking an individual project that provides an opportunity to demonstrate technical and general employability skills in preparation for career progression.</p> <p>More specifically, the individual project simulates typical graduate workplace tasks that require in-depth knowledge and skills in a specific area of computer science and network engineering. This will include consideration of wider issues and the ability to manage activities and resources, as well as generate, implement and report on solutions to meet task objectives. Throughout your studies, you'll be supported by our expert teaching staff, all of whom have a wide range of research and industrial experience in areas such as intelligent systems, mobile computing, Semantic Web, machine learning and software engineering, which they use to enhance the curriculum.</p>

7	Course Awards		
7a	Name of Final Award	Level	Credits Awarded
	Master of Science Data Networks and Security	7	180
7b	Exit Awards and Credits Awarded		
	Postgraduate Certificate Data Networks and Security	7	60
	Postgraduate Diploma Data Networks and Security	7	120

8	Derogation from the University Regulations
	<ol style="list-style-type: none"> 1. For modules with more than one item of assessment, students must achieve a minimum of 40% (postgraduate) in each item of assessment in order to pass the module. 2. Compensation of marginal failure in up to 20 credits is permitted across the course. 3. Condonement of failed modules is not permitted.

9	Delivery Patterns		
Mode(s) of Study	Location(s) of Study	Duration of Study	Code(s)
Full Time	City Centre	12 months	PT0985
Part Time	City Centre	20 months	PT0940
Full Time January 'with Professional Placement'	City Centre (and placement provider)	18 months	PT1355
Full Time September 'with Professional Placement'	City Centre (and placement provider)	18 months	PT1355

10	Entry Requirements
	<p>The admission requirements for this course are stated on the course page of the BCU website at https://www.bcu.ac.uk/.</p>

11	Course Learning Outcomes
Knowledge and Understanding	
1	Demonstrate knowledge and understanding of network design, network management, optimisation of network systems and network security.
2	Demonstrate knowledge of principles and underlying technologies of computer and data communications, device operating systems, and their underpinning protocols and structures for securing and optimising network solutions.
3	Demonstrate knowledge and understanding of appropriate tools, techniques and standards used in designing, managing, optimising and securing networked systems.
4	Describe the standards for network design, network management, optimisation of network systems and network security.
Cognitive and Intellectual Skills	
5	Use proficiently information and materials from a variety of sources for independent research, enquiry and learning.
6	Demonstrate creative and innovative ability in the synthesis of solutions and in formulating designs secure and optimised networked systems.
7	Draw independent conclusions based on a rigorous, analytical and critical assessment of argument, opinion.
8	Critically analyse and evaluate the requirements for network design, network management, optimisation of network systems and network security for a set of business requirements.
Practical and Professional Skills	
9	Plan, design and implement techniques and technologies used by network security engineers and managers.
10	Demonstrate practical skills acquired through laboratories sessions and workshops, either individually and/or group project work in accordance with ethical standards, professional codes of conduct and set guidelines.
11	Implement applications and network solutions using appropriate methodologies, tools and techniques.
12	Work independently or within a group, with limited need for supervision, in a professional and industrial context.
Key Transferable Skills	
13	Monitor, record, analyse and interpret data to effectively communicate to diverse audiences.
14	Manage time, prioritise activities and work to time-scales.
15	Demonstrate effective information retrieval skills from a range of sources and be able to cite and reference such sources.
16	Reflect on progress and plan for personal and career development.

12	Course Requirements																														
12a	<p>Level 7:</p> <p><i>In order to complete this course a student must successfully complete all the following CORE modules (totalling 180 credits):</i></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="background-color: #ffffcc;">Module Code</th> <th style="background-color: #ffffcc;">Module Name</th> <th style="background-color: #ffffcc;">Credit Value</th> </tr> </thead> <tbody> <tr> <td>CMP7158</td> <td>Research Methods and Project Management</td> <td>20</td> </tr> <tr> <td>CMP7155</td> <td>Network Management</td> <td>20</td> </tr> <tr> <td>CMP7151</td> <td>Advanced Networking Systems and Security</td> <td>20</td> </tr> <tr> <td>CMP7154</td> <td>Information Security</td> <td>20</td> </tr> <tr> <td>CMP7171</td> <td>Advanced Ethical Hacking</td> <td>20</td> </tr> <tr> <td>CMP7221</td> <td>Network Automation and Orchestration</td> <td>20</td> </tr> <tr> <td>CMP7200</td> <td>Individual Master's Project</td> <td>60</td> </tr> </tbody> </table> <p>Level 6:</p> <p>In order to qualify for the award of MSc Data Networks and Security with Professional Placement, a student must successfully complete all of the Level 7 modules listed above as well as the following Level 6 module:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="background-color: #ffffcc;">Module Code</th> <th style="background-color: #ffffcc;">Module Name</th> <th style="background-color: #ffffcc;">Credit Value</th> </tr> </thead> <tbody> <tr> <td>PLA6004</td> <td>Professional Placement</td> <td>60</td> </tr> </tbody> </table>	Module Code	Module Name	Credit Value	CMP7158	Research Methods and Project Management	20	CMP7155	Network Management	20	CMP7151	Advanced Networking Systems and Security	20	CMP7154	Information Security	20	CMP7171	Advanced Ethical Hacking	20	CMP7221	Network Automation and Orchestration	20	CMP7200	Individual Master's Project	60	Module Code	Module Name	Credit Value	PLA6004	Professional Placement	60
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12b Structure Diagram
Full Time Study
September Entry

Year 1 1st Semester (Sept – Dec)	Advanced Ethical Hacking	Network Management	Advanced Networking Systems and Security
Year 1 2nd Semester (Jan – May)	Information Security	Research Methods and Project Management	Network Automation and Orchestration
Year 1 3rd Semester (May- Sept)	Individual Master's Project (60 credits)		

January Entry

Year 1 1st Semester (Jan - May)	Advanced Ethical Hacking	Network Management	Advanced Networking Systems and Security
Year 1 2nd Semester (June - Sept)	Information Security	Research Methods and Project Management	Network Automation and Orchestration
Year 1 3rd Semester (Sept - Jan)	Individual Master's Project (60 credits)		

Part Time Study

September intake only

Semester	Level 7	Level 7
1A	Network Management 20CR	Advanced Networking Systems and Security 20CR
1B	Network Automation and Orchestration 20CR	Research Methods and Project Management 20CR
2A	Advanced Ethical Hacking 20CR	
2B	Information Security 20CR	Individual Master's Project 60CR (submitted Sept)

Professional Placement - Full-time mode (January intake)

Year 1 1st Semester (Jan – May)	Advanced Ethical Hacking	Network Management	Advanced Networking Systems and Security
Year 1 2nd Semester (June - Sept)	Information Security	Research Methods and Project Management	Network Automation and Orchestration
Year 2 1st Semester (Sept – Jan)	Individual Master's Project (60 credits)		
Year 2 2nd Semester (Jan - May)	Professional Placement (60 credits)		

Professional Placement - Full-time mode (September intake)

Year 1 1st Semester (Sept - Dec)	Advanced Ethical Hacking	Network Management	Advanced Networking Systems and Security
Year 1 2nd Semester (Jan - May)	Information Security	Research Methods and Project Management	Network Automation and Orchestration
Year 2 1st Semester (May - Sept)	Individual Master's Project (60 credits)		
Year 2 2nd Semester (Sept - Jan)	Professional Placement (60 credits)		

13 Overall Student Workload and Balance of Assessment

Overall student *workload* consists of class contact hours, independent learning and assessment activity, with each credit taken equating to a total study time of around 10 hours. While actual contact hours may depend on the optional modules selected, the following information gives an indication of how much time students will need to allocate to different activities at each level of the course.

- *Scheduled Learning* includes lectures, practical classes and workshops, contact time specified in timetable
- *Directed Learning* includes placements, work-based learning, external visits, on-line activity, Graduate+, peer learning
- *Private Study* includes preparation for exams

The *balance of assessment* by mode of assessment (e.g. coursework, exam and in-person) depends to some extent on the optional modules chosen by students. The approximate percentage of the course assessed by coursework, exam and in-person is shown below.

Level 7

Workload

% Time spent in timetabled teaching and learning activity

Activity	Number of Hours
Scheduled Learning	324
Directed Learning	514
Private Study	962
Total Hours	1800

Balance of Assessment

Assessment Mode	Percentage
Coursework	60%
Exam	29%
In-Person	11%