Year of entry: 2022/23

Programme Specification

1	**Awarding body**	University of London					
2	**Teaching Institution**	**Birkbeck College**					
3	**Programme Title(s)**	**MSc Advanced Computing Technologies**					
4	**Programme Code(s)**	TMSACTEC_C					
5	**UCAS code**	N/A					
6	**Home Department**	Computer Science and Information Systems					
7	**Exit Award(s)**	MSc Advanced Computing Technologies MSc Data Analytics PG Dip Advanced Computing Technologies PG Cert Advanced Computing Technologies					
8	**Duration of Study** (number of years)	1-year full-time, 2-years part-time					
9	**Mode of Study**	FT	X	PT	X	DL	
10	**Level of Award (FHEQ)**	7					
11	**Other teaching depts or institution**	N/A					
12	**Professional, Statutory Regulatory Body(PSRB) details**	N/A					
13	**QAA Benchmark Statement**	N/A					

14	**Programme Rationale & Aims**
	This specialist programme of study of advanced computing technologies has been designed to meet the needs of both part-time and full-time students wishing to advance their knowledge of advanced computing technologies. Students may be already working in the IT sector and wish to update their skills, or intend to pursue a career in IT or a research degree subsequently. The programme has significant coverage of emerging technologies and research developments, and focuses on areas of expertise and research specialisation within the Department of Computer Science and Information Systems. In addition to eight taught modules, there is a substantial practical project. As an alternative to the award of MSc Advanced Computing Technologies (ACT), students may choose modules and a project with a particular specialisation leading to the award MSc Data Analytics(DAA). Students who complete this MSc will have obtained knowledge and understanding of technologies of growing importance in the IT industry and their relationship to current and emerging IT industry practice. They will be able to use this knowledge and technical skills gained in: • analysis of problems arising in the use of advanced computing technologies • evaluation of technology options • deployment of appropriate solutions • research into, and development of, new technologies.

15	**Entry Criteria**
	A second-class honours degree (2:2) or above or MSc in computer science, with the syllabus containing a substantial amount of programming, preferably in an object-oriented language. Joint honours computing graduates may also be eligible, provided they have covered a substantial amount of programming, or have equivalent professional experience in the IT industry.

16	**Learning Outcomes**
	1. Subject Specific An advanced level of the following: a) knowledge of advanced computing technologies (ACT pathway) OR data analytics (DAA pathway) **2. Intellectual** a) critical analysis of the problems relating to the application of advanced computing technologies in computer systems development b) identification of appropriate technical solutions c) ability to evaluate advanced computing technologies in context d) evaluation of research publications **3. Practical** a) use of advanced computing technologies (ACT pathway) OR data analytics (DAA pathway) b) plan, execute and report on project work in the area of advanced computing technologies (ACT pathway) OR data analytics (DAA pathway) **4. Personal and Social** a) work and learn independently b) work and learn collaboratively c) plan work and work to deadlines

17	**Learning, teaching and assessment methods**
	The principal teaching methods include formal lectures, tutorials and practical lab sessions. There are also seminars and group exercises carried out in class in some of the modules. There is a large element of practical coursework which the students carry out in their own time. Some of these coursework assignments are carried out in groups. The individual project provides an opportunity for students to go more deeply into an aspect of the curriculum that particularly interests them and to build a larger and more complex system than they encounter in the assignments. The assessment methods ensure that the learning outcomes of the programme are addressed, while taking into account the needs and background of the student body as well as the resources available. There is an appropriate balance between coursework, examinations and projects, allowing examiners to discriminate between different levels of achievement. On-going formative feedback is provided to students by means of a suitable range of coursework assignments. Taught modules: there will be a 2-hour written exam in each of the modules. In addition, there will be a compulsory coursework component to some of the modules, which must be passed in order to pass the module.

	Project: judged on project report of about 10,000 words (maximum 15,000 words) plus related technical submissions. The project allows students to demonstrate self-direction and originality in solving and tackling problems, to plan and implement tasks to a professional level, and to continue to advance their knowledge, understanding and skills.

18	**Programme Description**
	Students on the MSc Advanced Computing Technologies (ACT) programme follow 8 modules from the following list and also complete a project in one or more of the areas covered by these modules. • Advances in Data Management (ADM) • Applied Machine Learning (AML) • Cloud Computing (CC) • Data Analytics Using R (DAR) • Data Science Techniques and Applications (DSTA) • Information and Network Security (INS) • Internet and Web Technologies (IWT) • Machine Learning (ML) • Mobile Computing and the Internet of Things (MCIoT) • Natural Language Processing and Information Retrieval (NLPIR) • Programming Paradigms and Languages (PPL) • Semantic Technologies (ST) • Software Design and Programming (SDP) For students whose interests are centred on the specialised area of Data Analytics, a named pathway is offered, MSc Data Analytics (DAA), to those satisfying the following criterion in their choice of modules: a minimum of 5 modules chosen from the Data Analytics Group listed below. **Data Analytics Group:** • Advances in Data Management (ADM) • Applied Machine Learning (AML) • Cloud Computing (CC) • Data Analytics Using R (DAR) • Data Science Techniques and Applications (DSTA) • Machine Learning (ML) • Natural Language Processing and Information Retrieval (NLPIR) **Note:** Certain modules may not be offered every year.

19	**Programme Structure**

MSc Advanced Computing Technologies - Full Time programme – 1 year

Year 1

Level	Module Code	Module Title	Credits	Status*
7		8 x 15-credit optional modules from Advanced Computing Technologies list below	120	Optional
7	BUCI035D7	MSc Advanced Computing Technologies Project	60	Core

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MSc Advanced Computing Technologies - Part Time programme – 2 years				
Year 1				
Level	**Module Code**	**Module Title**	**Credits**	**Status***
7		4 x 15-credit optional modules from Advanced Computing Technologies list below	60	Optional
Year 2				
Level	**Module Code**	**Module Title**	**Credits**	**Status***
7		4 x 15-credit optional modules from Advanced Computing Technologies list below	60	Optional
7	BUCI035D7	MSc Advanced Computing Technologies Project	60	Core
MSc Advanced Computing Technologies Optional Modules				
Level	**Module Code**	**Module Title**	**Credits**	**Status***
7	COIY025H7	Advances in Data Management (ADM)	15	Optional
7	BUCI077H7	Applied Machine Learning (AML)	15	Optional
7	BUCI029H7	Cloud Computing (CC)	15	Optional
7	BUCI042H7	Data Analytics Using R (DAR)	15	Optional
7	BUCI057H7	Data Science Techniques and Applications (DSTA)	15	Optional
7	BUCI040H7	Information and Network Security (INS)	15	Optional
7	COIY063H7	Internet and Web Technologies (IWT)	15	Optional
7	COIY065H7	Machine Learning (ML)	15	Optional
7	COIY047H7	Mobile Computing and the Internet of Things (MCIoT)	15	Optional
7	COIY064H7	Natural Language Processing and Information Retrieval (NLPIR)	15	Optional
7	BUCI031H7	Programming Paradigms and Languages (PPL)	15	Optional
7	COIY053H7	Semantic Technologies (ST)	15	Optional
7	COIY062H7	Software Design and Programming (SDP)	15	Optional
Pathway: MSc Data Analytics - Full Time programme – 1 year				
Year 1				
Level	**Module Code**	**Module Title**	**Credits**	**Status***
7		5 x 15-credit optional modules from the Data Analytics list below	75	Optional
7		3 x 15-credit optional modules from the Advanced Computing Technologies list above	45	
7	BUCI035D7	MSc Advanced Computing Technologies Project	60	Core

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Pathway: MSc Data Analytics - Part Time programme – 2 years				
Year 1				
Level	**Module Code**	**Module Title**	**Credits**	**Status***
7		5 x 15-credit optional modules from the Data Analytics list below – **over 2 years**	75	Optional
7		3 x 15-credit optional modules from the Advanced Computing Technologies list above – **over 2 years**	45	Optional
Year 2				
Level	**Module Code**	**Module Title**	**Credits**	**Status***
7		5 x 15-credit optional modules from the Data Analytics list below – **over 2 years**	75	
7		3 x 15-credit optional modules from the Advanced Computing Technologies list above – **over 2 years**	45	
7	BUCI035D7	MSc Advanced Computing Technologies Project	60	Core
MSc Data Analytics Optional Modules				
7	COIY025H7	Advances in Data Management (ADM)	15	Optional
7	BUCI077H7	Applied Machine Learning (AML)	15	Optional
7	BUCI029H7	Cloud Computing (CC)	15	Optional
7	BUCI042H7	Data Analytics Using R (DAR)	15	Optional
7	BUCI057H7	Data Science Techniques and Applications (DSTA)	15	Optional
7	COIY065H7	Machine Learning (ML)	15	Optional
7	COIY064H7	Natural Language Processing and Information Retrieval (NLPIR)	15	Optional

Status*

CORE – Module must be taken and passed by student

COMPULSORY – Module must be taken, mark can be reviewed at sub-exam board

OPTIONAL – Student can choose to take this module

20	**Programme Director**	Professor Peter Wood
21	**Start Date** ***(term/year)***	Autumn 2012
22	**Date approved by TQEC**	Autumn 2011
23	**Date approved by Academic Board**	Spring 2012
24	**Date(s) updated/amended**	10 January 2022