

KEY PROGRAMME INFORMATION

Originating institution(s) Bournemouth University	Faculty responsible for the programme Faculty of Science and Technology
Final award(s), title(s) and credits BSc (Hons) Data Science and Analytics – 120 (60 ECTS) Level 4 / 120 (60 ECTS) Level 5 / 120 (60 ECTS) Level 6 credits	
Intermediate award(s), title(s) and credits Dip HE Data Science and Analytics – 120 (60 ECTS) Level 4 / 120 (60 ECTS) Level 5 credits Cert HE Computing – 120 (60 ECTS) Level 4 credits	
UCAS Programme Code(s) (where applicable and if known) 38F2	HECoS (Higher Education Classification of Subjects) Code and balanced or major/minor load. 100366 (60%) Computer science 100992 (30%) Machine learning 100812 (10%) Project management
External reference points - The UK Quality Code for Higher Education; - Chapter A1: The National Level (incorporating the Framework for Higher Qualifications (FHEQ) in England, Wales and Northern Ireland); - Chapter A2: The Subject and Qualification Level (incorporating the Subject benchmark statements for Computing (2015)); - BCS – The Chartered Institute for IT guidelines	
Professional, Statutory and Regulatory Body (PSRB) links BCS – The Chartered Institute for IT accreditation (http://wam.bcs.org/wam/coursesearch.aspx#CoursesPL)	
Places of delivery Bournemouth University, Talbot Campus	
Mode(s) of delivery Full-time/Full-time sandwich	Language of delivery English
Typical duration Programme duration: 3 years full-time / 4 years full-time sandwich Level 4: 1 year Level 5: 1 year Optional sandwich placement: 1 year Level 6: 1 year	
Date of first intake September 2019	Expected start dates September
Maximum student numbers Not applicable	Placements A minimum of 30 weeks
Partner(s) Not applicable	Partnership model Not applicable
Date of this Programme Specification January 2022	
Version number 1.6-0923	
Approval, review or modification reference numbers E2017032 BU 1819 01 EC 1819 25 FST 1819 21, approved 04/09/19. Previously v1.1-0919 FST 1920 21, approved 05/02/20, Previously v1.2-0919 BU 2021 01, approved 30/09/20, previously v1.3-0920	

Programme Specification – Section 1

FST 2021 09, approved 05/05/21, previously v1.4-0920
FST 2122 10, approved 11/01/22, previously v1.5-0921
EC 2122 78
EC 2223 02
EC 2223 32

Author

Marcin Budka

Programme Specification – Section 1

PROGRAMME STRUCTURE

Programme Award and Title: BSc (Hons) <i>Data Science and Analytics</i>									
Year 1/Level 4 Students are required to complete all 6 core units									
Unit Name	Core/ Option	No of credits	Assessment Element Weightings			Expecte d contact hours per unit	Unit version no.	HESA HECoS code(s).	
			Exam 1	Cwk 1	Cwk 2			HECoS Subject Code and %	HECoS Subject Code and %
Principles of Programming		20	50%	50%		48	1.1	100956 (100%)	
Computer Fundamentals		20	50%	50%		48	2.2	100735 (50%)	100734 (50%)
Data and Databases		20	50%	50%		48	4.1	100754 (50%)	100755 (50%)
Networks and Cyber Security		20	50%	50%		48	2.2	100376 (50%)	100365 (50%)
Applications of Programming Principles		20		100%		48	1.1	100956 (70%)	100373 (30%)
Business Systems Analysis and Design		20	30%	70%		48	2.1	100753 (50%)	100360 (50%)
Progression requirements: Requires 120 credits at Level 4									
Exit qualification: Cert HE Computing (requires 120 credits at Level 4)									

Programme Specification – Section 1

Year 2/Level 5									
Students are required to complete 4 core and 2 option units									
Unit Name	Core/ Option	No of credits	Assessment Element Weightings			Expecte d contact hours per unit	Unit version no.	HESA HECoS code(s)	
			Exam 1	Cwk 1	Cwk 2			HECoS Subject Code and %	HECoS Subject Code and %
Machine Learning	Core	20		100%		36	1.2	100992 (100%)	
Tools & Technologies of Data Science	Core	20	30%	70%		36	1.1	100367 (50%)	100741 (50%)
Data Management	Core	20	50%	50%		36	3.1	100755 (50%)	100754 (50%)
Project Management & Teamwork	Core	20		100%		24	4.1	100812 (100%)	
Web Programming	Option^	20	50%	50%		36	3.1	100373 (50%)	100956 (50%)
Application Programming	Option^	20	30%	70%		36	3.1	100956 (100%)	
Systems Design	Option	20	50%	50%		36	3.1	100753 (100%)	
Infrastructure Strategy	Option	20	50%	50%		36	3.1	100734 (60%)	100365 (40%)
User Centred Web Development	Option^	20		40%	60%	36	4.2	100736 (50%)	100373 (50%)
^ The students must take one Programming unit (Application Programming, Web Programming or User Centred Web Development).									
Progression requirements: Requires 120 credits at Level 5									
Exit qualification: Dip HE Data Science and Analytics (requires 120 credits at Level 4 and 120 credits at Level 5)									
Year 3/Level P - Compulsory placement year in industry/business									
For programmes with a compulsory placement - exemption is possible for those who have worked in industry/business at a relevant level.									
Progression requirements: Satisfactory completion of a minimum 30-week placement in industry/business and placement report.									

Programme Specification – Section 1

Year 3/4/Level 6									
Students are required to complete 3 core and 1 option unit									
Unit Name	Core/ Option	No of credits	Assessment Element Weightings			Expecte d contact hours per unit	Unit version no.	HESA JACS code(s)	
			Exam 1	Cwk 1	Cwk 2			HECoS Subject Code and %	HECoS Subject Code and %
Data Visualisation and Visual Analytics	Core	20		100%		36	1.1	100367 (100%)	
Deep Learning	Core	20		100%		36	1.1	100359 (70%)	100966 (30%)
Machine Intelligence*	Option	20		100%		36	3.1	100359 (50%)	100992 (50%)
Data Mining	Option	20	50%	50%		36	3.1	100359 (50%)	100992 (50%)
Ubiquitous Computing*	Option	20		40%	60%	36	3.2	100366 (100%)	
Advanced Development	Option	20	50%	50%		36	3.1	100956 (100%)	
Individual Project	Core	60		100%		21	3.1	100358 (60%)	100812 (40%)

* = may not run, depends on student numbers and staff availability.

Exit qualification: BSc (Hons) Data Science and Analytics
Sandwich UG award: Requires 120 credits at Level 4, 120 credits at Level 5, 120 credits at Level 6 and successful completion of a placement year.
Full-time UG award: Requires 120 credits at Level 4, 120 credits at Level 5 and 120 credits at Level 6.

AIMS OF THE DOCUMENT

The aims of this document are to:

- define the structure of the programme;
- specify the programme award titles;
- identify programme and level learning outcomes;
- articulate the regulations governing the awards defined within the document.

AIMS OF THE PROGRAMME

Our digital universe holds an estimated 2.7+ zetabytes of data. By 2020 it is expected to be 50 times as big as in 2010. Research in traditionally qualitative disciplines is fundamentally changing due to the availability of this “Big Data” and data-intensive computing has been named as the fourth paradigm of scientific discovery. The commercial world is also undergoing a similar transformation, with analytics emerging as one of the key competitive dimensions. A recently compiled UK wide report commissioned by SAS Institute UK highlights (1) exponential rise of demand for big data staff within the last 5 years despite the unfavourable economic climate, (2) estimated 132,000 Big Data job opportunities to be created in the UK between 2012 and 2017 and (3) expected 350% increase in demand for Data Scientists over the next five years. In McKinsey's report it has been estimated that by 2018 the US alone will face a shortage of between 140,000 to 190,000 people with deep analytical skills while according to the e-Skills UK report in the UK such a shortage of skilled data analytics experts will be in the region of 58,000.

This programme is a response to the great and immediate need for people with data science and advanced analytics expertise acknowledged by industry and governmental bodies. Capitalising on the expertise and strong research portfolio of the Smart Technology Research Group (STRG), we are offering an attractive undergraduate level course in the area of data science which aims at producing graduates:

- with deep analytical skills able to pursue both industrial and academic careers;
- understanding the foundations of machine learning and statistics;
- familiar with the stack of recently developed technologies enabling fast processing of large amounts of data (or Big Data);
- aware of relevant application areas of these technologies and methods;
- able to efficiently communicate the results of whatever analysis they perform, to various audiences.

ALIGNMENT WITH THE UNIVERSITY'S STRATEGIC PLAN

The BSc (Hons) Data Science and Analytics programme is informed by and well aligned with Bournemouth University's 2012-18 strategic plan and the fusion of excellent teaching, world-class research and professional practice that is at the heart of the institution's visions and values. Students are supported by academics with a wealth of industry experience, many of whom are actively engaged in various data-related projects with several external organisations. Academics delivering the programme are actively engaged in cutting edge research, while students are encouraged to participate in a range of co-creation and co-publication projects. The programme's innovative pedagogic approach offers students the opportunity to learn by engaging in a series of practical, industry focused tasks, such as Simulated Business 2 Days (SB2D). These are aimed at equipping students with the full range of skills necessary to succeed in the contemporary ICT environment, and are informed by the academic team's own industrial experience as well as by a network of industry contacts, who may also contribute directly to the programme by delivering guest lectures

LEARNING HOURS AND ASSESSMENT

Bournemouth University taught programmes are composed of units of study, which are assigned a credit value indicating the amount of learning undertaken. The minimum credit value of a unit is normally 20 credits, above which credit values normally increase at 20-point intervals. 20 credits is the equivalent of 200 study hours required of the student, including lectures, seminars, assessment and independent study. 20 University credits are equivalent to 10 European Credit Transfer System (ECTS) credits.

The assessment workload for a unit should consider the total time devoted to study, including the assessment workload (i.e. formative and summative assessment) and the taught elements and independent study workload (i.e. lectures, seminars, preparatory work, practical activities, reading, critical reflection).

Assessment per 20 credit unit should normally consist of 3,000 words or equivalent. Dissertations and Level 6 and 7 Final Projects are distinct from other assessment types. The word count for these assignments is 5,000 words per 20 credits, recognising that undertaking an in-depth piece of original research as the capstone to a degree is pedagogically sound.

STAFF DELIVERING THE PROGRAMME

Students will usually be taught by a combination of senior academic staff with others who have relevant expertise including – where appropriate according to the content of the unit – academic staff, qualified professional practitioners, demonstrators/technicians and research students.

INTENDED LEARNING OUTCOMES – AND HOW THE PROGRAMME ENABLES STUDENTS TO ACHIEVE AND DEMONSTRATE THE INTENDED LEARNING OUTCOMES

PROGRAMME AND LEVEL 6 INTENDED PROGRAMME OUTCOMES

<p>A: Subject knowledge and understanding</p> <p>This programme/level provides opportunities for students to develop and demonstrate knowledge and understanding of:</p>	<p>The following learning and teaching and assessment strategies and methods enable students to achieve and to demonstrate the programme/level learning outcomes:</p>
<p>A1 Principles and techniques of machine learning, statistics, data mining and analytics;</p> <p>A2 Enabling technologies for large scale data analysis and mining;</p> <p>A3 A specialist subject of the student's choice in an area offered by the Programme at Level 6;</p> <p>A4 A rigorous data-driven approach to investigating and solving analytical problems;</p> <p>A5 The development of software or other IT solutions to business and other problems;</p>	<p>Learning and teaching strategies and methods (referring to numbered Intended Learning Outcomes):</p> <ul style="list-style-type: none"> • lectures (A1-A6); • seminars (A1-A6); • directed reading (A1-A6); • use of the VLE (A1 – A6); • independent research (for dissertation) (A1-A6).
<p>A6 The professional, legal & ethical responsibilities of computing personnel within the organisational, technical and global contexts in which computing is applied.</p>	<p>Assessment strategies and methods (referring to numbered Intended Learning Outcomes):</p> <ul style="list-style-type: none"> • examinations (A1-A4, A6); • coursework essays (A1-A4, A6);

	<ul style="list-style-type: none"> dissertation (A1-A6).
B: Intellectual skills This programme/level provides opportunities for students to:	The following learning and teaching and assessment strategies and methods enable students to achieve and to demonstrate the programme/level outcomes:
B1 Reason critically; B2 Demonstrate independent thought; B3 Analyse, interpret, synthesise and evaluate information; B4 Identify and solve problems; B5 Select and apply appropriate design methods to the solution of problems; B6 Evaluate resource requirements of alternative solutions.	Learning and teaching strategies and methods (referring to numbered Intended Learning Outcomes): <ul style="list-style-type: none"> lectures (B1 - B4); seminars (B1 – B6); directed reading (B5 – B6); use of the VLE (B2 – B5); independent research (for dissertation) (B1 – B6).
	Assessment strategies and methods (referring to numbered Intended Learning Outcomes): <ul style="list-style-type: none"> examinations (B1- B5); coursework essays (B1 – B6); dissertation (B1 – B6).
C: Practical skills This programme/level/stage provides opportunities for students to:	The following learning and teaching and assessment strategies and methods enable students to achieve and to demonstrate the programme/level learning outcomes:
C1 Retrieve, select and evaluate information from a variety of sources; C2 Formulate a set of requirements for an IT solution; C3 Design a solution to an IT problem; C4 Implement a solution to an IT problem; C5 Evaluate an IT system; C6 Plan, monitor and evaluate the progress of an IT project.	Learning and teaching strategies and methods (referring to numbered Intended Learning Outcomes): <ul style="list-style-type: none"> lectures (C1 – C6); coursework essays (C1 - C3, C5); independent research for empirical dissertation (C1 – C2); Individual Project Supervision (C3 – C6).
	Assessment strategies and methods (referring to numbered Intended Learning Outcomes): <ul style="list-style-type: none"> examinations (C2, C5);

	<ul style="list-style-type: none"> • coursework essays (C1, C2, C3, C5); • coursework design and implementation (C1 – C5) • Individual Project/dissertation (C1 – C6).
<p>D: Transferable skills</p> <p>This programme/level/stage provides opportunities for students to:</p>	<p>The following learning and teaching and assessment strategies and methods enable students to achieve and to demonstrate the programme/level learning outcomes:</p>
<p>D1 Structure and communicate ideas effectively both orally and in writing;</p> <p>D2 Learn independently in complicated contexts;</p> <p>D3 Work professionally as an individual to develop creative solutions to problems;</p> <p>D4 Work professionally in teams to develop creative solutions to problems.</p>	<p>Learning and teaching strategies and methods (referring to numbered Intended Learning Outcomes):</p> <ul style="list-style-type: none"> • lectures (D1 – D4); • seminars (D1- D4); • use of the VLE (D1 – D4); • directed reading (D1- D4). <p>Assessment strategies and methods (referring to numbered Intended Learning Outcomes):</p> <ul style="list-style-type: none"> • coursework essays (D1 – D4); • coursework design and implementation (D1 - D3); • examinations (D1 – D4); • dissertation (D1- D4).

LEVEL 5/DipHE INTENDED OUTCOMES

<p>A: Knowledge and understanding</p> <p>This programme/level/stage provides opportunities for students to develop and demonstrate knowledge and understanding of:</p>	<p>The following learning and teaching and assessment strategies and methods enable students to achieve and to demonstrate the level/stage learning outcomes:</p>
<p>A1 The different platforms on which IT systems operate and the importance of security;</p> <p>A2 The principles and techniques for specifying and designing IT systems and their interfaces;</p> <p>A3 The principles and techniques of project management and of working professionally and ethically in teams;</p> <p>A4 The principles and techniques of developing IT applications to provide solutions to problems of intermediate complexity;</p> <p>A5 Knowledge of basic mathematical principles of automated data analysis and statistics.</p>	<p>Learning and teaching strategies and methods (referring to numbered Intended Learning Outcomes):</p> <ul style="list-style-type: none"> • lectures (A1 – A5); • seminars (A1 – A5); • directed reading (A1, A3); • use of the VLE (A1 – A5). <p>Assessment strategies and methods (referring to numbered Intended Learning Outcomes):</p> <ul style="list-style-type: none"> • examinations (A1 – A5); • coursework essays/presentations (A2 – A5); • coursework design and implementation (A2 – A5).
<p>B: Intellectual skills</p> <p>This programme/level/stage provides opportunities for students to:</p>	<p>The following learning and teaching and assessment strategies and methods enable students to achieve and to demonstrate the level/stage learning outcomes:</p>
<p>B1 Apply appropriate analysis, design and development concepts to problems of intermediate complexity, with minimal guidance;</p> <p>B2 Analyse processes and problems, and specify, design and evaluate appropriate solutions;</p> <p>B3 Investigate technologies and approaches systematically and show how they can be used to solve problems;</p> <p>B4 Understand the factors that affect how people work in teams.</p>	<p>Learning and teaching strategies and methods (referring to numbered Intended Learning Outcomes):</p> <ul style="list-style-type: none"> • lectures (B1 – B4); • seminars (B1 – B4); • directed reading (B1 – B4); • use of the VLE (B1 – B5). <p>Assessment strategies and methods (referring to numbered Intended Learning Outcomes):</p> <ul style="list-style-type: none"> • examinations (B1 – B4); • coursework essays/presentations (B1 – B4).

<p>C: Practical skills</p> <p>This programme/level/stage provides opportunities for students to:</p>	<p>The following learning and teaching and assessment strategies and methods enable students to achieve and to demonstrate the level/stage learning outcomes:</p>
<p>C1 Select, apply and evaluate appropriate models and techniques in the design and development of applications;</p> <p>C2 Select appropriate platforms and security measures for different IT systems;</p> <p>C3 Specify, design and evaluate IT solutions to problems of intermediate complexity;</p> <p>C4 Use computer programs or development tools to build IT systems to provide solutions to problems of intermediate complexity;</p> <p>C5 Select and apply appropriate machine learning algorithms;</p> <p>C6 Work in teams to manage and monitor data analysis problems of intermediate size and complexity.</p>	<p>Learning and teaching strategies and methods (referring to numbered Intended Learning Outcomes):</p> <ul style="list-style-type: none"> • lectures (C1 – C3); • seminars (C1 – C5); • group exercises (C4 – C6). <p>Assessment strategies and methods (referring to numbered Intended Learning Outcomes):</p> <ul style="list-style-type: none"> • examinations (C1 – C3, C5); • coursework design and implementation (C1 – C6).
<p>D: Transferable skills</p> <p>This programme/level/stage provides opportunities for students to:</p>	<p>The following learning and teaching and assessment strategies and methods enable students to achieve and to demonstrate the level/stage learning outcomes:</p>
<p>D1 Organise and use ideas to communicate orally and in writing;</p> <p>D2 Learn independently in contexts of intermediate complexity;</p> <p>D3 Work as an individual to seek solutions to problems, with minimal guidance;</p> <p>D4 Work ethically in teams to seek solutions to problems, with minimal guidance.</p>	<p>Learning and teaching strategies and methods (referring to numbered Intended Learning Outcomes):</p> <ul style="list-style-type: none"> • lectures (D1 – D4); • seminars (D1 – D4); • use of the VLE (D1 – D4); • directed reading (D1 – D4). <p>Assessment strategies and methods (referring to numbered Intended Learning Outcomes):</p> <ul style="list-style-type: none"> • coursework essays (D1 - D5); • open book examinations (D1 - D5); • dissertation (D1- D5).

LEVEL 4/Cert HE INTENDED OUTCOMES

<p>A: Knowledge and understanding</p> <p>This level provides opportunities for students to develop and demonstrate knowledge and understanding of:</p>	<p>The following learning and teaching and assessment strategies and methods enable students to achieve and to demonstrate the level learning outcomes:</p>
<p>A1 Basic principles of programming using one of the major programming languages;</p> <p>A2 Principles and techniques of database design and development;</p> <p>A3 Principles and techniques of systems analysis and design in a commercial context;</p> <p>A4 Principles of computer networks and security;</p> <p>A5 The principles and techniques of designing and developing usable applications;</p> <p>A6 Principles of computers and operating systems.</p>	<p>Learning and teaching strategies and methods (referring to numbered Intended Learning Outcomes):</p> <ul style="list-style-type: none"> • lectures (A1 – A6); • seminars (A1 – A6); • directed reading (A1, A6); • use of the VLE (A1 – A6). <p>Assessment strategies and methods (referring to numbered Intended Learning Outcomes):</p> <ul style="list-style-type: none"> • examinations (A1 – A6); • coursework essays (A3, A4, A6); • coursework design and implementation (A1, A2, A5).
<p>B: Intellectual skills</p> <p>This level provides opportunities for students to:</p>	<p>The following learning and teaching and assessment strategies and methods enable students to achieve and to demonstrate the level learning outcomes:</p>
<p>B1 Apply analysis, design and development concepts with guidance, using given principles;</p> <p>B2 Analyse small well-defined scenarios and design, and implement and test appropriate solutions;</p> <p>B3 Analyse, categorise and interpret data and information;</p> <p>B4 Utilise analyses to plan and develop further investigations.</p>	<p>Learning and teaching strategies and methods (referring to numbered Intended Learning Outcomes):</p> <ul style="list-style-type: none"> • lectures (B1 – B4); • seminars (B1 – B4); • directed reading (B1 – B4). <p>Assessment strategies and methods (referring to numbered Intended Learning Outcomes):</p> <ul style="list-style-type: none"> • examinations (B1 – B4); • coursework essays (B1 – B4); • coursework design and implementation (A1, A2, A5).

<p>C: Practical skills</p> <p>This level provides opportunities for students to:</p>	<p>The following learning and teaching and assessment strategies and methods enable students to achieve and to demonstrate the level learning outcomes:</p>
<p>C1 Write computer programs to solve simple problems;</p> <p>C2 Design and implement databases using a query language;</p> <p>C3 Set up and configure a simple system (a computer or small network);</p> <p>C4 Design and build simple web applications using a markup language and applying design principles;</p> <p>C5 Use and apply modelling techniques to analyse and design solutions to simple problems;</p> <p>C6 Work in small teams to solve simple development problems.</p>	<p>Learning and teaching strategies and methods (referring to numbered Intended Learning Outcomes):</p> <ul style="list-style-type: none"> • lectures (C1 – C5); • seminars (C1 – C6); • group exercises (C5, C6). <p>Assessment strategies and methods (referring to numbered Intended Learning Outcomes):</p> <ul style="list-style-type: none"> • Coursework design and implementation (C1 – C6); • Reflection (C1 – C6).
<p>D: Transferable skills</p> <p>This level provides opportunities for students to:</p>	<p>The following learning and teaching and assessment strategies and methods enable students to achieve and to demonstrate the level learning outcomes:</p>
<p>D1 Communicate orally and in writing using appropriate structures, facts and events;</p> <p>D2 Conduct and report within a set time and context on work assigned;</p> <p>D3 Find facts to describe and explain simple phenomena and artefacts;</p> <p>D4 Work independently to achieve set goals;</p> <p>D5 Work efficiently and effectively in small groups within limited and set contexts;</p> <p>D6 Appreciate the professional and ethical issues involved in IT.</p>	<p>Learning and teaching strategies and methods (referring to numbered Intended Learning Outcomes):</p> <ul style="list-style-type: none"> • lectures (D1 – D6); • seminars (D1 – D6); • use of the VLE (D1 – D6); • directed reading (D1 – D6). <p>Assessment strategies and methods (referring to numbered Intended Learning Outcomes):</p> <ul style="list-style-type: none"> • coursework essays (D1 – D6); • examinations (D1 – D6); • presentations (D1- D6).

ADMISSION REGULATIONS

Please refer to the course website for further information regarding admission regulations for this programme: [BSc \(Hons\) Data Science and Analytics | Bournemouth University](#)

PROGRESSION ROUTES

Partnership arrangements provide formally approved progression routes through which students are eligible to apply for a place on a programme leading to a BU award. Please find information on Global Partnerships here: [Global partnerships | Bournemouth University](#)

ASSESSMENT REGULATIONS

The regulations for this programme are the University's Standard Undergraduate [Assessment Regulations](#).

WORK BASED LEARNING (WBL) AND PLACEMENT ELEMENTS

Students, under the guidance of lecturers and the Placement Office, are required to complete a sandwich year with a 30 week minimum placement requirement before Level 6.

The placement is assessed on a pass/fail basis using the log book and employer appraisal. The 30 week sandwich placement must be completed between Levels 5 and 6 and is a requirement for progression to Level 6 for the successful completion of the sandwich mode award.

Placement draws on some or all of the units studied on the first two levels of the programme. It provides the opportunity for the student to develop their abilities and understanding of BIT and related subjects, as well as providing a platform for successful entry into the profession following graduation. It applies and develops understanding and skills acquired in Levels 4 and 5, makes a major contribution to the understanding of the final level units, further develops final projects or dissertation research by utilising the context of the work experience as appropriate and enhances students' prospects of future employment.

Refer to [*4K – Placements: Policy and Procedure*](#) for more details.

Programme Skills Matrix

Units		Programme Intended Learning Outcomes																					
		A 1	A 2	A 3	A 4	A 5	A 6	B 1	B 2	B 3	B 4	B 5	B 6	C 1	C 2	C 3	C 4	C 5	C 6	D 1	D 2	D 3	D 4
LEVEL 6	Data Visualisation and Visual Analytics	X	X			X	X	X	X		X	X		X	X	X	X	X		X		X	
	Deep Learning	X	X			X		X	X	X	X	X	X	X	X	X	X	X		X	X	X	
	Data Mining	X		X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
	Machine Intelligence*	X		X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
	Ubiquitous Computing*		X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
	Individual Project	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
LEVEL 5	Machine Learning	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	
	Tools & Technologies of Data Science		X			X	X	X	X	X	X	X	X	X		X	X	X		X	X	X	
	Data Management	X	X			X	X	X	X	X	X	X	X	X		X	X	X		X	X	X	
	Project Management & Teamwork				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X
	Systems Design					X	X	X	X	X	X	X	X	X	X	X		X		X	X	X	
	Web Programming					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	User Centred Web Development			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	
	Application Programming					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	Infrastructure Strategy					X	X	X	X	X	X	X	X	X	X	X		X		X	X	X	
LEVEL 4	Principles of Programming					X	X	X	X	X	X		X		X	X	X		X	X	X	X	
	Computer Fundamentals					X	X	X	X	X	X	X	X						X	X	X		
	Data & Databases	X				X	X	X	X	X	X		X		X	X	X		X	X	X		
	Networks and Cyber Security					X	X	X	X	X	X	X	X	X	X	X		X		X	X	X	
	Applications of Programming Principles					X	X	X	X	X	X		X	X	X	X	X		X	X	X	X	
	Business Systems Analysis and Design					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
A – Subject Knowledge and Understanding This programme provides opportunities for students to develop and demonstrate knowledge and understanding of: 1. Principles and techniques of machine learning, statistics, data mining and analytics, 2. Enabling technologies for large scale data analysis and mining, 3. A specialist subject of the student's choice in an area offered by the PROGRAMME at L6, 4. A rigorous data-driven approach to investigating and solving analytical problems, 5. The development of software or other IT solutions to business and other problems, 6. The professional, legal & ethical responsibilities of computing personnel within the organisational, technical and global contexts in which computing is applied.												C – Subject-specific/Practical Skills This programme provides opportunities for students to: 1. Retrieve, select and evaluate information from a variety of sources, 2. Formulate a set of requirements for an IT solution, 3. Design a solution to an IT problem, 4. Implement a solution to an IT problem, 5. Evaluate an IT system, 6. Plan, monitor, and evaluate the progress of an IT project.											
B – Intellectual Skills This programme provides opportunities for students to: 1. Reason critically, 2. Demonstrate independent thought, 3. Analyse, interpret, synthesise and evaluate information, 4. Identify and solve problems, 5. Select and apply appropriate design methods to the solution of problems, 6. Evaluate resource requirements of alternative solutions.												D – Transferable Skills This programme provides opportunities for students to: 1. Structure and communicate ideas effectively, both orally and in writing, 2. Learn independently in complicated contexts, 3. Work professionally as an individual to develop creative solutions to problems, 4. Work professionally in teams to develop creative solutions to problems.											