Programme specification

1. Overview/ factual information

Programme/award title(s)	Foundation Degree in Data Analytics & Visualisation
Teaching Institution	Ada, the National College of Digital Skills
Awarding Institution	The Open University (OU)
Date of first OU validation	January 2019
Date of latest OU (re)validation	N/A
Next revalidation	June 2020
Credit points for the award	240
UCAS Code	TBA
Programme start date	October 2020
Underpinning QAA subject benchmark(s)	Foundation Degree Qualification Benchmark (2015)
Other external and internal reference points used to inform programme outcomes	Level 4 Apprenticeship Standards for Data Analyst https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/510127/Standard_Data_Analyst.pdf Digital & Technology Solutions Professional – degree apprenticeship Standard https://www.instituteforapprenticeships.org/apprenticeship-standards/digital-and-technology-solutions-professional-degree/
Professional/statutory recognition	
Mode(s) of Study (PT, FT, DL, Mix of DL & Face-to-Face)	FT
Duration of the programme for each mode of study	Two Years
Dual accreditation (if applicable)	N/A
Date of production/revision of this specification	May 2020

Please note: This specification provides a concise summary of the main features of the programme and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if s/he takes full advantage of the learning opportunities that are provided.

More detailed information on the learning outcomes, content, and teaching, learning and assessment methods of each module can be found in student module guide(s) and the student's handbook.

The accuracy of the information contained in this document is reviewed by the University and may be verified by the Quality Assurance Agency for Higher Education.

2.1 Educational aims and objectives

The general educational objectives of the programme are to:

- Provide knowledge and understanding in the theory, practice of statistics as well as the use of statistical software and programming skills to allow students to gain employment as a data analytics job.

- Foster knowledge and understanding of a modern range of data visualisation and analytics topics, techniques and skills, enriched by the expertise of a broad staff base and industrial links.

- Provide an awareness of the power, breadth, range of applications and limitations of data visualisation and analytics concepts.

- Produce graduates able to efficiently communicate the results of whatever analysis they perform, to various audiences.

- Develop students' abilities to apply independent critical thinking, communication skills and self-management skills to identify problems in their organisations and formulate and implement effective solutions.

- Equip students with the ability to apply methods of statistics that are fundamental to Data Analytics.

2.2 Relationship to other programmes and awards

(Where the award is part of a hierarchy of awards/programmes, this section describes the articulation between them, opportunities for progression upon completion of the programme, and arrangements for bridging modules or induction)

N/A

2.3 For Foundation Degrees, please list where the 60 credit work-related learning takes place

Please see Section 6

2.4 List of all exit awards
Certificate of Higher Education (CertHE)

3. Programme structure and learning outcomes

Foundation Degree in Data Analytics & Visualisation			
YEAR 1	Data Analysis Concepts	Essential Statistics for Data Analysis	Data Analytics & Project Management
	Data Analytics with Python (I)	Database Systems	The Ethics of Data Analytics
Certificate of Higher Education (CertHE)			
YEAR 2	Data Analytics with Python (II)	Data Visualisation	Network Security
	Data Analytics & Business Insight	Work-based Project	Artificial Intelligence
Foundation Degree			

Programme Structure - LEVEL 4					
Compulsory modules	**Credit point s**	**Optional modules**	**Credit points**	**Is module compensatable?**	**Semester runs in**
1. Data Analysis Concepts	20	None	N/A	No	Semester 1
2. Essential Statistics for Data Analysis	20				Semester 1
3. Data Analytics & Project Management	20				Semester 1
4. The Ethics of Data Analytics	20				Semester 1
5. Database Systems	20				Semester 2
6. Data Analytics with Python I	20				Semester 2

Programme Delivery : Block Weeks			
Level	**Module Title**	**Method of Delivery**	**Method(s) of Assessment**
LEVEL FOUR	Data Analysis Concepts	Block release (Launchpad)	Written Examination 50 % Practical Assignment 50%
	Essential Statistics for Data Analysis	Block release (Launchpad)	Written Examination 50 % Practical Assignment 50%
	Data Analytics & Project Management	Block release (Launchpad)	Report & Presentation 100%
	Data Analytics with Python I	Block release (Launchpad)	Computer-based Exam100%
	Database Systems	Block release	Written Examination 50 % Practical Assignment 50%
	The Ethics of Data Analytics	Block release	Written Essay 100%
	Evidencing Work Based Learning	Blended learning	Portfolio (not assessed)

Intended learning outcomes at Level 4 are listed below:

Learning Outcomes – LEVEL 4
3A. Knowledge and understanding
On successful completion of the level, a student should be able to demonstrate knowledge and understanding of:

Learning outcomes:	Learning and teaching strategy/ assessment methods
A1: How data is collected, managed and stored for data analysis. **A2:** Principles and techniques of statistics, analytics and calculus. **A3:** The importance of information and security to business and the key legal and ethical issues encountered when securing access to data. **A4:** The strengths and weaknesses of selected statistical/data analytics software and selected programming languages and their use to extend capabilities for data analysis and visualisation.	Learning and teaching strategies and methods (referring to numbered Intended Learning Outcomes): • lectures (A1-A5) • seminars (A1-A5) • directed reading (A1-A5) • use of the VLE (A1 – A5)
A5: The professional, legal & ethical responsibilities of personnel within the organisational, technical and global contexts in which data analytics is applied.	Assessment strategies and methods (referring to numbered Intended Learning Outcomes): • examinations (A1-A3) • coursework design and implementation (A4) • coursework essays (A5)

3B. Cognitive skills	
On successful completion of the level a student should be able to:	
Learning outcomes:	**Learning and teaching strategy/ assessment methods**
B1: Identify the essentials of data visualisation and analytics Problems. **B2:** Analyse, categorise and interpret data and information statistical models. **B3:** Apply analysis, design and development concepts with guidance, using given principles. **B4:** Utilise analyses to plan and develop further investigations.	Learning and teaching strategies and methods (referring to numbered Intended Learning Outcomes): • lectures (B1-B4) • seminars (B1-B4) • directed reading (B1-B4) • use of the VLE (B1 – A4)
	Assessment strategies and methods (referring to numbered Intended Learning Outcomes): • examinations (B1-B2) • coursework design and implementation (B2-B3) • coursework essays (B1-B4)

3C. Practical and professional skills	
This level provides opportunities for students to:	
Learning outcomes:	**Learning and teaching strategy/ assessment methods**
C1: Retrieve, select and evaluate information from a variety of sources. **C2:** Apply methods of statistics that are fundamental to Data analysis. **C3:** Plan and generate visualisations from data using programming language. **C4:** Design and implement databases using a query language. **C5:** Select and utilise analytical and project management tools in the support of informed / effective decision-making.	Learning and teaching strategies and methods (referring to numbered Intended Learning Outcomes): • lectures (C1-C4) • seminars (C1-C4) • group exercise (C1-C5)
	Assessment strategies and methods (referring to numbered Intended Learning Outcomes): • coursework design and implementation (C1-C5) • reflection (C1-C5)

3D. Key/transferable skills

This level provides opportunities for students to:

Learning outcomes:	Learning and teaching strategy/ assessment methods
D1: Demonstrate an ability to work to deadlines, both individually and in groups and to show evidence of planning within both time and personal constraints. **D2:** Communicate effectively through graphical presentations, the spoken word and written reports. **D3:** Work as an individual to seek solutions to problems, with minimal guidance. **D4:** Work ethically in teams to seek solutions to problems, with minimal guidance.	Learning and teaching strategies and methods (referring to numbered Intended Learning Outcomes): • seminars (D1-D4) • directed reading (D1-D4) • use of the VLE (D1 – D4)
	Assessment strategies and methods (referring to numbered Intended Learning Outcomes): • coursework design and implementation (D1, D4) • coursework essays (D3) • presentations (D2)

Programme Structure - LEVEL 5						
Compulsory modules	**Credit points**	**Optional modules**	**Credit points**	**Is module compensatable?**		**Semester runs in**
1. Data Analytics with Python II 2. Data Visualisation 3. Network Security 4. Data Analytics & Business Insight 5. Work-based Project 6. Artificial Intelligence	20 20 20 20 20 20	None	N/A	No		Semester 1 Semester 1 Semester 1 Semester 2 Semester 2 Semester 2

Programme Delivery : Block Weeks			
LEVEL	**Module Title**	**Method of Delivery**	**Method(s) of Assessment**
LEVEL FIVE	Data Analytics with Python II	Block release x 2	Programming Assignment 100%
	Data Visualisation	Block release x 2	Practical Assignment 100%
	Network Security	Block release x 2	Practical Assignment 100%
	Data Analytics & Business Insight	Block release x 2	Practical Assignment 100%
	Work-based Project	Blended learning	Report & Presentation 100%
	Artificial Intelligence	Block release x 2	Practical Assignments 100%
	Evidencing Work Based Learning	Blended learning	Portfolio (not assessed)

Learning Outcomes – LEVEL 5

On successful completion of the level, a student should be able to demonstrate knowledge and understanding of:

3A. Knowledge and understanding

Learning outcomes:	Learning and teaching strategy/ assessment methods
A6: State-of-the-art tools to build useful visualisations for different types of data sets and application scenarios. **A7:** The business value of business analytics, and how technology can be used to create this value. **A8:** Principles and techniques of machine learning, and analytics. **A9:** Advanced programming skills for the management, manipulation, analysis, and visualisation of a broad variety of data formats.	Learning and teaching strategies and methods (referring to numbered Intended Learning Outcomes): • lectures (A6-A9) • seminars (A6-A9); • directed reading (A7-A8) • use of the VLE (A6 – A9)
	Assessment strategies and methods (referring to numbered Intended Learning Outcomes): • examinations (A7-A8) • coursework design and implementation (A6, A9) • coursework essays (A6, A9)

3B. Cognitive skills	
On successful completion of the level a student should be able to:	
Learning outcomes:	**Learning and teaching strategy/ assessment methods**
B5: Creatively deploy appropriate tools and techniques for the development of data analytics applications. **B6:** Apply appropriate control measures to minimise risks of security breaches in a range of network environments and data storage systems, drawing on industry practice. **B7:** Critically evaluate data visualisations based on their design and use for communicating stories from data.	Learning and teaching strategies and methods (referring to numbered Intended Learning Outcomes): • lectures (B5-B8) • seminars (B5-B8) • directed reading (B5-B7) • use of the VLE (B5 – B7)
B8: Apply appropriate analysis, design and development concepts to problems of intermediate complexity, with minimal guidance.	Assessment strategies and methods (referring to numbered Intended Learning Outcomes): • examinations (B6-B7) • coursework design and implementation (B5-B8) • coursework essays (B5-B8)

3C. Practical and professional skills

This level provides opportunities for students to:

Learning outcomes:	Learning and teaching strategy/ assessment methods
C6: Develop and evaluate applications for data problematic domains **C7:** Perform correctly data visualisation and exploratory analysis techniques using appropriate software. **C8:** Select and apply appropriate machine learning algorithms. **C9:** Design a suitable programming workflow to analyse data to provide solutions to problems of intermediate complexity. **C10:** Apply subject-specific and intellectual skills to provide systematic data analytics solutions to a reasonable range of problems.	Learning and teaching strategies and methods (referring to numbered Intended Learning Outcomes): • lectures (C6-C10) • seminars (C6-C10) • group exercise (C9-C10)
	Assessment strategies and methods (referring to numbered Intended Learning Outcomes): • coursework design and implementation (C6-C10) • reflection (C6-C10)

3D. Key/transferable skills	
This level provides opportunities for students to:	

Learning outcomes:	**Learning and teaching strategy/ assessment methods**
D5: Use appropriate specialist software for data visualisation and analytics. **D6:** Retrieve and manipulate information. **D7:** Learn independently in contexts of intermediate complexity.	Learning and teaching strategies and methods (referring to numbered Intended Learning Outcomes): • seminars (D5-D8) • directed reading (D7-D8)
D8: Work as an individual to seek solutions to problems, with minimal guidance.	Assessment strategies and methods (referring to numbered Intended Learning Outcomes): • coursework design and implementation (D5-D6) • coursework essays (D7-D8)

Title of award at Level 5: Foundation Degree

4. Distinctive features of the programme structure

- **Where applicable, this section provides details on distinctive featurs such as:**
- ➢ where in the structure above a professional/placement year fits in and how it may affect progression

- ➢ any restrictions regarding the availability of elective modules
- ➢ where in the programme structure students must make a choice of pathway/route
- **Additional considerations for apprenticeships:**
- ➢ how the delivery of the academic award fits in with the wider apprenticeship
- ➢ the integration of the 'on the job' and 'off the job' training
- ➢ how the academic award fits within the assessment of the apprenticeship

This programme is a Foundation Degree and combines academic study with professional practice. The programme is designed for employers and their employees (the students) providing the opportunity to combine academic study with professional practice in Data Science sector. Students will be employed as an apprentice in a data analysis role throughout their studies and thus be able to apply their discipline knowledge to professional and industrial practice as they progress through the programme. This combination of academic learning at degree level with on the job practical training provides a holistic programme of education enabling students to become confident, competent and capable data analysis.

The curriculum is designed with input from employers to ensure its relevance to industry and fulfils both the educational requirements for an Open University Degree and the Data Analysis Level 4 Apprenticeship Standard, part of the government's initiative to develop apprenticeships at higher skill levels. This includes the delivery of the skills, knowledge and behaviours set out in the occupational standard and specific requirements with regard to the way the programme is delivered and assessed.

The programme has two stages, each equivalent to a normal academic year. The pattern of study is designed to fit around full-time employment and uses a blended learning approach, which mixes work-based study and attendance at on-campus study days. This approach allows students to be both productive employees, learning relevant skills on the job, and participants in a learning community of students who are broadening and deepening their professional knowledge together.

The programme is 50 weeks' duration per year during Level 4 and Level 5, with 80% of work-based learning and 20% of college study. The first eight weeks of the programme is delivered as "Launch-pad" at the college. The Launch-pad will provide an opportunity for students to consolidate their learning, receive academic tutorial support, allow revision time and provide an introduction to the next unit in the schedule. Each module is a self-contained block of learning with defined aims, learning outcomes and assessment. A standard module is worth 20 credits. It equates to the learning activity expected from one sixth of a full-time year.

To enable students to link theory and practice in the workplace the programme includes a work-based e-portfolio constructed over the course of two years and a work-based project in year two. The portfolio will provide a record of the specific skills and knowledge they have developed and used in the workplace and provide an opportunity to reflect on their personal development. The e-portfolio is not assessed by the programme, but is assessed by the BCS as a component of the End-point Assessment (EPA) against the Level 4 Apprenticeship Standard. Teaching staff and skill coaches at Ada will guide apprentices in the development of this portfolio and provide formative feedback at set times throughout the degree to guide the apprentice in developing an appropriate portfolio. Work mentors will guide the students from the point of view of documenting their work experience and completion of objectives. Given the pace of change in technology, it is critical that learners completing this degree are self-aware and self-managed with respect to their own professional development, that they are reflective practitioners.

The work-based project, on the other hand is an integral part of the foundation degree and is assessed by Ada. It is grounded in the student's area of work with employer and address pertinent challenges identified by the student/employer.
Furthermore, the programme focuses on:

- Development of expert data visualisation knowledge and analytics skills, helping

Students to stand out to prospective employers.

- Immersion in industry-relevant practical applications and knowledge implementation to a variety of sectors, from banking and finance, to e-commerce, consultancy and government.

- Investigation of a wide range of topics, including Big Data analysis, modern visualization techniques and programming.

- Cultivation of key transferable skills such as using professional software for data modelling and analytics, writing comprehensive reports and creating engaging Presentations.

- Study of optimisation techniques and financial analysis, and exploration and visualisation of the complicated data sets.

5. Support for students and their learning
(For apprenticeships this should include details of how student learning is supported in the work place)

5.1 Overview

The general approach is predicated on providing a degree that:

- Reflects current professional practice and values that help apprentices to continually develop as world-class professionals.
- Is tailored by consultation with employers.
- Provides a professional approach to the delivery of learning and teaching that is built upon staff professional skills, research informed subjects and continuous professional development.

The learning, teaching on these degrees provide:

- An emphasis on professional skills development within the workplace and at college that is embedded in the learning, teaching and assessment process.

- Alternative modes of learning to support the needs, preferences and abilities of all of our students. A mix of alternative approaches such as lectures, seminars, laboratory classes, simulations, videos and self-directed study will be used.

- Using research informed teaching as a bridge between research and teaching with an increased emphasis at level 6.

- Use of diagnostic online and in-class testing to identify student progress and individual learning needs. Flexible levels of additional support to challenge exceptional students and support those identified as needing further help to progress.

- The consistent use of a wide range of digital resources including IT equipment, use of a virtual learning environment and digital library resources.

- Working in partnership with students to enhance their experience, including staff-apprentice liaison meetings and regular apprentice surveys of learning, teaching and assessment at a module and programme level.

- Independent Learning and Reflection that requires learners to take responsibility for their own learning by being pro-active in seeking out new learning opportunities.

5.2 Technology Enhanced Learning

The use of technology enabled learning materials, allows flexibility in the delivery of the programme, supports independent learning, and aids inclusivity. All units will make extensive use of the College's virtual learning environment (VLE). The VLE is used, not only as a repository for course notes, examples and exercises and as a mechanism for making announcements, but also to provide additional learning resources such as videos, links to journal articles, formative quizzes, and a mechanism to submit assessments and return feedback. Students using the VLE will be able to take their

learning beyond the classroom. Moreover, students will be provided with their own domain, so they can establish their own online identity, collect their work, create a blog-based portfolio, etc.

As part of the introduction to their module, module leaders will introduce students to the classroom site, and how to navigate their way round it and how it will be used on that particular unit. To facilitate remote meetings staff and students may make use of screen sharing technologies and video conferencing software (e.g. Skype™). Employers will not have access to student VLE areas but some form of electronic forum will be used to maintain contact with work mentors.

5.3. Personal Development Planning

Personal Development Planning (PDP) is designed to help students make the most of their college education and to help plan their career. PDP focuses on helping students to develop a range of academic skills. It also facilitates preparation for their career after graduation. A comprehensive guide for PDP can be found on the college's VLE. Furthermore, the Degree has a mandatory requirement for completion of an e-portfolio that covers all three years. The e-portfolio is owned by the student and not embedded in college systems.The portfolio will be used to document progress towards the personal and professional objectives set within the host company as well as document the students' progress towards mastery of the learning outcomes defined as core within the degree.

5.4 Support at Workplace

- Ada College, will appoint apprenticeship Skills Coaches to manage the relationship between employer, apprentices' working for that employer, and the College.

- Similarly, the employer will appoint a supervisor, who will work closely with the apprenticeship link officer, to oversee delivery and evidencing of relevant training delivered in the workplace via a learning log, in agreement with the College.

- At your workplace, you will be supported by your employer. Exact arrangements and terminology are the responsibility of the employer, but typically, you will be supported as follows, where the roles may be combined in one person.

- A Mentor/Supervisor designated by the employer to provide vocational and pastoral support for individual students, who may or may not be your line manager. In particular support will be provided for work-based learning assignments and the final year project.

- An Apprenticeship Liaison Manager who manages the relationship between the programme (via the skill coaches) and the employer.

- The College and the employer are bound by contract to work together to support you as an apprentice. This will include quarterly meetings between the College, the student, and the employer.

5.4.1. Links between theory & practice within the workplace

The apprentices are required to construct a work-based portfolio over the three years of their programme to demonstrate the applications of the theoretical knowledge in the workplace. The portfolio serves as a reflective and reflexive summary by the student on how learning outcomes of the programme have been practiced at workplace, including references to work within their portfolio of evidence.

In order to support and facilitate this, Ada College has recruited four Apprenticeship Skills Coaches to provide support & guidance through the work-based learning period. The responsibilities of the skill coaches include :

o Carry out reviews in person with apprentices and line managers to monitor progress against key milestones
o Work with apprentice to create and monitor their individual learning plans.
o Provide rigorous feedback on work-based learning evidence.

- Assess and support apprentices through the construction of the work-based portfolio.
- Ensure monthly performance updates on learners are provided to Ada.
- Assess whether apprentices are ready to enter gateway and support them to prepare for their end point assessment.

5.4.2. Roles and Responsibilities

<u>**Apprentices are required to :**</u>

- Engage fully during planned Work-based Learning (WBL) in order to achieve the stipulated learning outcomes;
- Inform the Apprenticeship Skills Coach or of any issue which is likely to affect the achievement of the agreed learning outcome for the WBL;
- Confirm to the regulations and policies of the placement organisation;
- Maintain the confidentiality of any sensitive information concerning the organisation and its business;
- Submit the e-portfolio within the specified deadline;

<u>**The employer is required to :**</u>

- Define clearly the types and nature of placement learning opportunities available in the organisation;
- Induct, support and provide learning opportunities to meet the WBL needs of the apprentice;
- Review and assess the apprentice's progress during the placement learning episode;
- Provide relevant and organisation specific information on regulations, health & safety policies and the nature of the business;
- Enable the apprentice to gain a fair, safe and equitable WBL opportunities;
- Advise the Apprenticeship Skills Coaches of any issues which may affect the apprentices' experience and outcome during a planned WBL Practice;

- Assist and guide the apprentice in the development and completion of the WBL e-portfolio in accordance with the stipulated guidelines;

- Work in partnership with the College in the maintenance and enhancement of the quality of the WBL opportunities;

The Apprenticeship Skills Coaches are required to:

- Carry out reviews in person with apprentices and line managers to monitor progress against key milestones

- Provide rigorous feedback on work-based e-portfolio evidences

- Work with apprentice to create and monitor their individual learning plans

- Provide personal and professional support to apprentices and employers

- Ensure monthly performance updates on learners are provided to Ada

- Track the progression of all key programme elements

- Assess whether apprentices are ready to enter gateway and support them to prepare for their end point assessment

- Ensure all apprentice records are maintained and compliant to ESFA regulations

5.4.3. Commitment statement

The apprentice shall :

- Attend training sessions, either on- or off-the-job, as and when required;

- Liaise with the skills coach and the employer, as applicable, in relation to any reviews, monitoring, or audits required for the apprenticeship, including providing information for, and access to, all documentation relevant to the apprenticeship on request;

The employer shall

- Provide a safe and supportive environment for the work-based elements of the apprenticeship;

- Ensure that the apprentice's roles at work allow him/her to gain the wider employment experience required by the programme and the apprenticeship framework;

- Ensure that the apprentice is given sufficient time to enable him/her to complete all elements of the work-based learning elements of the programme within his/her contracted working hours;
- Allow the apprentice to attend all agreed off-the-job learning and shall continue to pay the apprentice during such time, where it falls within normal working hours;

The College shall

- Deliver the academic learning elements of the programme and establish and/or deliver on- and off-the-job learning to meet the needs of the apprenticeship, the apprentice and the employer;
- Monitor the apprentice's progress in liaison with the employer, and the link tutor shall keep the employer informed of the apprentice's progress, including any disciplinary issues;
- Monitor the quality of learning delivery to ensure that it meets the required standards, including liaising with both the employer and the apprentice;

6. Work-based Learning Framework

Authentic and innovative work-based learning (WBL) is an integral part of Foundation degrees and their design. It enables learners to take on appropriate role(s) within the workplace, giving them the opportunity to learn and apply the skills and knowledge they have acquired as an integrated element of the programme. It involves the development of higher-level learning within both the higher education provider and the workplace. It is a two-way process, where the learning in one environment is applied in the other. Work-based learning and engagement with employers have been embraced accordingly in this programme through a number of modules but principally in the level 5 work- based project module and the level 4 project module.

6.1 Educational aims of the WBL Framework

The aims of the WBL framework are:

- To enable the College to provide higher education programmes customised to the needs of employer partners.

- To provide accessible and flexible opportunities for the apprentices to gain a comprehensive range of higher education qualifications at levels 4 to 5.

- To provide a means to recognise and accredit higher-level learning that is specifically achieved in the context of work to promote continuing personal and professional development.

- To enable individuals to recognise their own work-based learning as the subject of higher education study.

- To enable individuals to develop higher-level knowledge and understanding, and cognitive, practical, personal and enabling skills from the study of their own work-based learning.

- To provide the means to construct negotiated work-based projects, in partnership with employers that are designed to meet their development needs.

6.2 Descriptors and Learning Outcomes

Work-based learning framework specify opportunities for students to achieve and demonstrate learning outcomes at appropriate academic levels (4 to 5). The framework includes work-based learning level descriptors that describe learning achievement in four categories at each level:

- Knowledge and understanding

- Cognitive skills

- Practical skills

- Personal and enabling skills

All work-based learning modules specify learning outcomes that appropriately reflect these level descriptors. The work-based learning outcomes describe what students should be able to demonstrate on successful completion of a work-based learning module.

6.3 Learning and Teaching

Work-based learning operates a blended learning and teaching approach in line with the college's learning, teaching and assessment strategy. The following methods are offered to enable students to develop their knowledge and understanding:

- Induction workshops

- Formative feedback on work from the student's workplace mentor

- Tutor-led face to face and online discussion/meeting

- Student-led interaction via online discussion forums

- Student-led interaction with workplace colleagues

- Self-directed learning facilitated by programme handbook and other learning materials

6.4 Assessment

Methods used to assess the apprentice at workplace must be valid and reliable, and allow for the generation of evidence which is sufficient to make judgments about the apprentice's level of knowledge and understanding, skills and competencies. The assessments will result in a portfolio of evidence the 'quality' of which is graded as part of the overall classification of the apprenticeship (i.e. Distinction, Merit, Pass, Fail).

6.5 Portfolio

To successfully complete an apprenticeship, the learners need to demonstrate both knowledge and have the skills of applying that knowledge in the workplace which is demonstrated with work-based 'evidence'. The evidence contained in the portfolio will comprise of complete and/or discrete pieces of work that covers the totality of the Level 4 Data Analysis Apprenticeship Standard.

In the portfolio, apprentices present evidence from real-work projects, illustrating the application of all the knowledge, skills and behaviours set out in the standard. This is produced towards the end of the apprenticeship with evidence from projects that have been completed, usually, towards the end of the apprenticeship. The portfolio is assessed as part of the endpoint assessment, and is not formally assessed whilst on programme. The portfolio is not evidence that the learning has taken place, but is evidence that the apprentice has applied that learning in a holistic and coherent way.

The evidence contained in the portfolio will comprise a small number of complete and/or discrete pieces of work which, together, cover the totality of the standard. It will showcase their very best work, enabling them to demonstrate how they have applied their knowledge and understanding in a real-work environment to achieve real-work objectives. Employers and training providers will assist the apprentice to assemble their portfolio to ensure that the summative portfolio is complete, that it covers the totality of the standard and has been done to a satisfactory level. Wherever possible, this will be an e-portfolio or other electronic platform. The evidence should be based on real work projects or outputs.

Evidence of work-based activities may be in the form of:
- Reports

- Practical exercises

- Projects

- Minutes

- Appraisals against performance objectives

- Development plans

- Records of observation of performance and professional discussions

- Personal reflective log

- Feedback on behaviours via contact with others

- Teamwork - manager's report

- Emails

- Customer comments

The completed portfolio will be assessed against the requirements summarised in the standard and set out in detail in the occupational brief. This is carried out by an independent assessor who makes their own judgement on the quality of the work. The independent assessor may also note particular aspects of the work that they wish to discuss with the apprentice during the interview, either to confirm their judgement and/or provide further information on which to base their grading decisions. The evidence will be assessed against all components of the standard, i.e.:

- Technical competencies

- Technical knowledge and understanding

- Underpinning skills, attitudes and behaviour.

The evidence in the portfolio will be examined for:

- Completeness – the evidence in the portfolio, taken together, must cover the totality of the standard

- Quality – the evidence must at least satisfy the minimum requirements for each area of the standard.

Link tutors will assist the apprentice to develop their portfolio to ensure that it is complete and that it covers the totality of the standard.

6.6 Work-based Project (WBP)

The work-based project (WBP) is a part of the Foundation degree which contributes to the final mark (i.e. classification) of the degree. The details of the assessment are contained in the respective module descriptor as well as the student handbook. The WBP is a substantial piece of work to be undertaken at level 5, during the second year of the degree.

The project must bring together elements of learning from different parts of the programme and show evidence of accumulated knowledge and understanding of management, and the application of these within their organisation. The project must meet the standards and demonstrate the approach taken to the planning and completion of the project.

Considering the significance of the project, the employer and college must work together with the apprentice to agree on a project that is achievable within the employer's business constraints whilst meeting the needs of the standard. The project should be conducted as part of the apprentice's normal work. The employer should make allowances, in terms of time and resource, for the project to be undertaken. Any elements which need to be undertaken outside of normal work should be agreed between the employer, apprentice and Provider so that apprentices are not disadvantaged in any way from performing their job and meeting the requirements of the project.

The process starts off by apprentices submitting a proposal. Apprentices are strongly advised to consult with their line managers when preparing the proposal, to discuss /consider issues such as ethics, IP, data protection, confidentiality, etc.

The proposal requires approvals of both the college (academic standards) and the employer (workplace standards). This will be finalised through discussion between Ada, the employer and the student. (In some cases, the proposal is returned to the apprentice for minor/major changes based on the college/employer feedback). Upon the approval of the proposal, apprentices will settle on their project, in conjunction with the employer and the academic team.

The requirements for the delivery of the work-based project are shown below:

Design

- A specification must be developed to show what has to be delivered on completion of the project - this must include the outputs, project plans etc.

- Terms of reference must be developed by the apprentice and agreed by the college and employer early in the project.

- The college must provide clear project assessment criteria including those for the terms of reference, approach to the problem, solution design and implementation, the final report and presentation.

- Apprentices must document their assumptions and highlight the consequences of these assumptions – enabling them to demonstrate their understanding of commercial pressures and the application of their thinking and problem-solving skills.

- Agreement must be made between the apprentice, employer and college on what systems, tools and platforms will be required (if any) to complete the

tasks and how these will be made available.

Delivery

- The College will work with the employer and apprentice to agree on the project title and support arrangements required to enable the project to be undertaken.

- The project should normally be based on an agreed business problem that forms part of the apprentice's role.

- Suitable time should be set aside by the employer for the apprentice to plan, undertake and write up their project.

- The apprentice must first work out what is required and present terms of reference and an initial plan for an agreement with the employer and provider.

- The project should typically be undertaken at the employer's premises.

- The employer and the College must ensure that the apprentice has access to the tools and systems required to complete the tasks within the project.

- The apprentice must provide a signed statement to confirm the project is their own work.

- The project will be set and completed during the second year of the degree.

Project Environment

- A suitable project environment should be provided ensuring access to all required tools and systems. This will be the apprentice's normal place of work.

- Someone responsible for managing the project from the employer perspective must be identified.

- The link tutor from the college must oversee and provide support to the apprentice.

- The work-based project will contribute towards the achievement of the degree.

6.6 Threshold Requirements

The Ada College will take responsibility for the quality of the learning opportunities delivered via work-based learning and will ensure individual and collective responsibilities of students, link tutors and workplace mentors are clearly defined. The following provides an indicative list of what all parties required to do in work-based activities:

Students are required to:

- Engage fully during planned work-based learning program in order to achieve the stipulated learning outcomes.

- Inform the link tutor of any issue that might prevent progress in, or satisfactory completion of the learning outcomes.

- Conform to the regulations and policies of the workplace organisation and expected standards of ethical behaviour.

- Maintain the confidentiality of any sensitive information concerning the organisation and its business.

- Submit the report within the specified deadline.

- Undertake any assessments which may be required to meet the programme learning outcomes.

The link tutors are required to:

- Oversee the assessment of students during the workplace learning period.

- Visit the students at the workplace regularly for assessment and provision of support.

- Oversee the assessment of students during the programme.

- Provide guidance and support on request and act as the initial college contact for students experiencing difficulties during work-based learning.

- Respond to student queries/concerns related to their work-based learning experience and assessment process.

- Provide feedback to link areas on student evaluations of their experience.

- Gather and evaluate feedback from all parties.

- Where applicable, invite the employer's mentor to attend training activities at the college to ensure the employers are able to manage the assessment of students in line with Ada College policies and procedures.

7. Criteria for admission
- Level 3 qualifications (A-Level/BTEC) at Grade C/equivalent or above with at least one qualification being in Mathematics or another mathematically based STEM subject or equivalent work experience.
- Additionally, candidates are normally required to have a grade level 6 (old

grade B) or above in GCSE Maths and to have demonstrated ability in Maths in further studies.

8. Language of study

English

9. Assessment Strategy & Progression Rules

The assessment approach has been designed to ensure that students meet the skills, knowledge and behaviour outcomes as defined in the programme. A range of assessment methods will be used which are appropriate to learners who benefit from face-to-face learning opportunities as well as a good quality virtual learning environment (VLE). The Assessments have two purposes:

- To provide learners with feedback about how their work is progressing *'formative'* assessment.
- To measure and record student's achievement of modules towards the qualification '*summative'* assessment.

Given the nature and context of the programme such an approach provides feedback to improve students' achievement and actively involves all students in the teaching and learning process. The teaching team aims to provide timely and constructive feedback to students. Providing timely effective feedback can engage students in more productive learning activities and it enables better monitoring of progress of students.

The proramme's formative assessment also plays a fundamental role in maintaining and enhancing learner motivation through the provision of personalised feedback, allowing the individual to reflect on their learning, clarify misconceptions, obtain a sense of the level of competencies attained, and gauge how they are progressing. This feedback will be given both orally and in a written format through the VLE.

The assessment processes incorporate internal moderation and external examiners to ensure independence across the degree programme and between the suggested formative and end-point assessment. The remainder of this section will set out the approach to assessment, including what will be assessed, how it will be assessed and the role of the assessors, employer and apprentice in the assessment process.

9.1 Assessment Overview

The Individual modules will contribute formative assessment to the skills, knowledge and behaviour outcomes en-route to the final project and presentation. Formative

assessment methods will include an appropriate mix of essays, reports, practical assignments, written exams and worked-based portfolio. These will be applied to the proposed modules to assess the development of skills, knowledge and behaviours. The endpoint assessment is by a project and presentation.

Practical assignments are used extensively particularly on modules that have programming component. This is the only realistic method for providing formative feedback to students in this area of work. Essay type assignments are used where the nature of the material lends itself to this: for example, essays may be used where a number of different techniques can be compared.

Examinations are used as a summative assessment (though we also use the marks gained in earlier practical assignments and essays to produce final grades in each module). The grades for all modules taken at levels 4-5 are combined to give the final classification. In some modules, we require students to gain at least a certain level in examinations: this is because we are aware that collusion between students can lead to less able students doing better than they could unaided in practical work.

The formative assessment of individual modules will give an ongoing indication of performance against the learning outcomes defined in the programme. Moreover, the formative assessment methods ensure that the student is sufficiently prepared to undertake the endpoint assessment.

9.2 Progression Rules
A student must achieve 120 credit points in the first year of the programme in order to be able to progress to the second year. A total credit of 240 is required to be awarded the Foundation degree at the end of the programme.

9.3 Final Assessment and Grading
Classification of Foundation degree will be based on the average mark across all modules. The class of degree is determined by the programme mark as shown below.

Mark	Class of degree
70% -100%	Distinction
60% -69%	Merit
40% -59%	Pass

10. Information about non-OU standard assessment regulations (including PSRB requirements)

The college and the employer work together to support the apprentice and to carry out the endpoint assessment (EPA). In accordance with the Apprenticeship Standard, the work-based project contributes to the endpoint assessment for the level 4 apprenticeship. Both the project outcomes and the associated presentation and

interview will be assessed. The project is work-based, is chosen in conjunction with the employer, and is assessed jointly by the college and the employer.

In addition to the academic work that leads to the award of the Foundation degree in Data Analytics and Visualisation, the apprentice will create a portfolio of evidence which will demonstrate how learning has been applied, their achievements and capabilities. It is a collection of evidence which demonstrates evidence of the skills, knowledge and behaviours an apprentice has acquired against the standard.

Towards the end of the programme, the apprentice will undertake a synoptic project, which will bring together elements of their learning from different parts of the programme and show their accumulated knowledge and understanding of data analytics and its application in their organisation. The EPA is by a robust panel interview, which will include a presentation on the project, review of portfolio evidence, and a question and answer session This combination will fully test that the apprentice meets all the requirements of the standards. The apprentice must 'pass' the EPA in order to gain their level 4 apprenticeship.

The British Computing Society (BCS), The Chartered Institute for IT carries out the end-point assessment interview. It includes a review of your portfolio, a presentation and synoptic project to make sure the apprentice has met the learning outcomes of the programme.

11. Methods for evaluating and improving the quality and standards of teaching and learning.

The college has a comprehensive quality assurance programme that monitors all programmes through programme review, achievement of performance indicators and observation of teaching and learning. This is also representation and input from employers who will contribute to curriculum development and review. In this provision all module guides are internally verified to ensure that all learning outcomes and grading criteria are met. This programme is externally monitored by external examiners who advise on academic standards and ensure that all learning objectives have been met.

11.1 External Examiner
The role of external examiners is to assure the quality of students' learning experience and ensure that they are assessed fairly in relation to other students on the same programme and to all students across the College and nationally. External examiner's reports are an integral part of the College quality assurance processes. They form part of the requirements for programme annual review and the programme team must demonstrate how they have responded to the views and comments made by external examiner.

11.2 Indicators of Quality and Standards

Annual Review
The programme will undergo a Programme Annual Review in line with the College processes.

Student feedback
The Programme Team will employ a variety of methods to gain feedback from students on their course, including:

- Two annual student surveys - 'First term' and 'On Exit'.
- Completion of the National Student Survey (NSS) for final year students
- Individual on-line module evaluations.
- Teaching and Learning (T&L) Committee will be held twice a year to facilitate the sharing of good practice and initiatives from internal and external developments.
- T&L committee will consist of the Dean, the Programme Director, members of teaching staff and students' representatives for each cohort.
- On-line Student forums.

Progress indicators
The progress indicators are considered on an annual basis and typically include:

- Student evaluation questionnaires. These are completed by students during in the first term and at the end of the year and (with the NSS) in their final year.
- Module evaluations which determine the students view on the quality of the modules they have studied.
- Independent internal and external reviews including QAA.
- Reviews by external examiners who comment on levels of achievement compared with standards elsewhere.
- Internal progression rates, completion rates, student success indicators.

12. Changes made to the programme since last (re)validation

The proposed changes fall into the following categories:

1 : Introduction of New Modules :

Two new modules, "Data Analytics for Project Management" and " Network Security" are replacing the modules " Data Analysis in practice" at Level 4 and " Data Warehousing " at Level 5, respectively. The purpose of placing these new modules within the programme structure is to meet three of the core standards of Level 6 Apprenticeship in DTS : These standards are : Cyber Security, IT Project Management and Computer & Network Infrastructure.

https://www.instituteforapprenticeships.org/apprenticeship-standards/digital-and-technology-solutions-professional-integrated-degree/

The Network Security module is already an approved module at Level 5 of the validated BSc

Programme, and the "Data Analytics for Project Management" module is an amended version of the approved "SDLC and Project Management" module at level 4 of the BSc programme.

2. Modification of Leaning Outcomes of the Programme

The original Learning outcomes have been modified to teach the security in more than one module. The revised learning outcomes are :

A3: Demonstrate an understanding of the importance of information and security to business and the key legal and ethical issues encountered when securing access to data

C5: Select and utilise analytical and project management tools in the support of informed / effective decision-making.

B6: Apply appropriate control measures to minimise risks of security breaches in a range of network environments and data storage systems, drawing on industry practice.

In order to develop and assess the revised programme outcomes, appropriate module-specific learning outcomes have been added to relevant modules as follows :

Database Systems; (LO - B4) : Recognise the main security threats to databases, and identify appropriate control measures.

Data Analytics & Business Insight ; (LO -A3) : explain how security controls can be implemented to protect systems and information.

Ethics of Data Analytics ; (L-:C3) : Analyse and discuss social impact and professional issues in the realm of data analytics, in particular evaluate solutions to privacy threats within the context of data analytics practice in industry.

3: Revised Curriculum Maps

The revised curriculum map demonstrate that all learning outcomes are taught and assessed appropriately across the programme.

A revised *Modules – Level 4 Apprenticeship Standard* Matrix also demonstrates that the revised FD structure , maps the modules to Level 4 Data Analysis Apprenticeship Standard.

A *Modules – Level 6 Apprenticeship Standard* Matrix also demonstrates that the revised FD structure , together with the third year of the BSc degree maps the modules to Level 6 DTS Apprenticeship standard.

Annexe 1: Programme Curriculum map

Annexe 2: Level 4 Apprenticeship Standards for Data Analyst

Annexe 3 - Modules – Level 4 Apprenticeship Standards Matrix

Annexe 4: Level 6 Apprenticeship Standard for Digital Technology and Solutions (DTS)

Annexe 5 - Modules – Level 6 Apprenticeship Standards Matrix

Annexe 6 - Foundation Degree Benchmark Standards

Annexe 7 - Programme Outcomes – FD Standards Matrix

Annexe 1 - Curriculum map (Modules-Programme Outcomes Matrix)

This table indicates which modules assume responsibility for developing (D) and assessing (A) particular programme learning outcomes.

	Outcomes	Knowledge and Understanding					Cognitive/Intellectual Skills				Practical/Professional Skills					Key Transferable Skills			
Year	Module	A1	A2	A3	A4	A5	B1	B2	B3	B4	C1	C2	C3	C4	C5	D1	D2	D3	D4
YEAR ONE	Data Analysis Concepts	DA	-	-	-	-	D	D	-	-	DA	-	-	-	-	D	-	D	-
	Essential Statistics for Data Analysis	-	DA	-	D	-	-	DA	-	-	D	DA	-	-	-	-	-	D	-
	Data Analytics & Project Management	A	-	-	D	D	A	A	DA	DA	A	A	DA	-	DA	DA	DA	-	DA
	The Ethics of Data Analytics	-	-	DA	-	DA	-	-	-	-	D	-	-	-	-	-	DA	DA	-
	Database Systems	DA	-	DA	D	-	-	D	DA	-	D	-	-	DA	-	-	DA	D	-
	Data Analytics with Python I	-	-	-	DA		D	DA	DA	-	D	-	DA	-	-	D	-	DA	-

Outcomes		Knowledge and Understanding				Cognitive/Intellectual Skills				Practical/Professional Skills					Key Transferable Skills			
Year	Module	A6	A7	A8	A9	B5	B6	B7	B8	C6	C7	C8	C9	C10	D5	D6	D7	D8
YEAR TWO	Data Analytics with Python II	DA	-	D	DA	DA		A	-	-	DA	D	DA	-	DA	D	-	DA
	Data Visualisation	A	-	-	A	-		DA	-	-	D	-	-	-	A	DA	-	DA
	Network Security	-	-	-	-	D	DA	-	-	-	-	-	-	D	-	D	D	
	Data Analytics & Business Insight	-	DA	-	-	D	DA	-		DA	-	-	-	A	A	DA	D	DA
	Work-based Project	A	-	A	A	DA	DA	A	DA	DA	DA	A	DA	A	A	DA	DA	DA
	Artificial Intelligence	-	-	DA	-	A	-	-	DA	DA	-	DA	-	-	-	-	DA	DA

Annexe 2: Level 4 Apprenticeship Standards for Data Analyst

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/510127/Standard_Data_Analyst.pdf

Technical Competencies (SKILLS)

Be able to undertake the following in line with organisational procedures and under supervision

S1: identify, collect and migrate data to/from a range of internal and external systems

S2: manipulate and link different data sets as required

S3: interpret and apply the organisations' data and information security standards, policies and procedures to data management activities

S4: collect and compile data from different sources

S5: perform database queries across multiple tables to extract data for analysis

S6: perform routine statistical analyses and ad-hoc queries

S7: use a range of analytical techniques such as data mining, time series forecasting and modelling techniques to identify and predict trends and patterns in data

S8: assist production of performance dashboards and reports

S9: assist with data quality checking and cleansing

S10: apply the tools and techniques for data analysis, data visualisation and presentation

S11: assist with the production of a range of ad-hoc and standard data analysis reports

S12: summarise and present the results of data analysis to a range of stakeholders making recommendations

S13: works with the organisation's data architecture

Technical Knowledge and Understanding (KNOWLEDGE)

K1: the range of data protection and legal issues

K2: the data life cycle

K3: the different types of data, including open and public data, administrative data, and research data

K4: the differences between structured and unstructured data

K5: the fundamentals of data structures, database system design, implementation and maintenance

K6: the importance of the domain context for data analytics

K7: the quality issues that can arise with data and how to avoid and/or resolve these

K8: the importance of clearly defining customer requirements for data analysis

K9: the processes and tools used for data integration

K10: the steps involved in carrying out routine data analysis tasks

K11: how to use and apply industry-standard tools and methods for data analysis

Underpinning Skills, Attitudes and Behaviours (BEHAVIOUR)

B1: Logical and creative thinking skills

B2: Analytical and problem-solving skills

B3: Ability to work independently and to take responsibility

B4: Can use own initiative

B5: A thorough and organised approach

B6: Ability to work with a range of internal and external people

B7: Ability to communicate effectively in a variety of situations

B8: Maintain productive, professional and secure working environment

Annexe 3 : Programme Modules – Level 4 Apprenticeship Standards Matrix

	Level 4 Standards / Modules	Technical Competencies (S)													Technical Knowledge and Understanding (K)											Underpinning Skills, Attitudes and Behaviours (B)							
		S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	S13	K1	K2	K3	K4	K5	K6	K7	K8	K9	K10	K11	B1	B2	B3	B4	B5	B6	B7	B8
YEAR ONE	Data Analysis Concepts	✓	✓		✓		✓		✓							✓	✓	✓	✓	✓	✓			✓									
	Essential Statistics for Data Analysis				✓		✓	✓																			✓						
	Data Analytics with Python I	✓	✓		✓		✓				✓												✓										
	Data Analytics & Project Management	✓	✓	✓	✓		✓		✓	✓	✓	✓									✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	
	Database Systems	✓	✓		✓	✓														✓	✓												
	The Ethics of Data Analytics														✓																✓		✓

: Launchpad

	Level 4 → Standards	Technical Competencies (S)													Technical Knowledge and Understanding (K)											Underpinning Skills, Attitudes and Behaviours (B)							
	Modules	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	S13	K1	K2	K3	K4	K5	K6	K7	K8	K9	K10	K11	B1	B2	B3	B4	B5	B6	B7	B8
YEAR TWO	Data Analytics with Python II	✓	✓		✓	✓					✓												✓										
	Data Visualisation	✓	✓		✓				✓		✓																						
	Network Security			✓										✓	✓									✓									✓
	Data Analytics & Business Insight				✓																		✓										✓
	Work-based Project	✓	✓	✓	✓					✓	✓	✓	✓	✓							✓	✓	✓	✓		✓		✓	✓	✓	✓	✓	✓
	Artificial Intelligence							✓																		✓	✓						

Annexe 4: Level 6 Apprenticeship Standard for Digital & Technology Solutions Professional – degree apprenticeship

https://www.instituteforapprenticeships.org/apprenticeship-standards/digital-and-technology-solutions-professional-degree/

Core Skills (S)

S1: Information Systems: is able to critically analyse a business domain in order to identify the role of information systems, highlight issues and identify opportunities for improvement through evaluating information systems in relation to their intended purpose and effectiveness.

S2: Systems Development: analyses business and technical requirements to select and specify appropriate technology solutions. Designs, implements, tests, and debugs software to meet requirements using contemporary methods including agile development. Manages the development and assurance of software artefacts applying secure development practises to ensure system resilience. Configures and deploys solutions to end users.

S3: Data: identifies organisational information requirements and can model data solutions using conceptual data modelling techniques. Is able to implement a database solution using an industry standard database management system (DBMS). Can perform database administration tasks and is cognisant of the key concepts of data quality and data security. Is able to manage data effectively and undertake data analysis.

S4: Cyber Security: can undertake a security risk assessment for a simple IT system and propose resolution advice. Can identify, analyse and evaluate security threats and hazards to planned and installed information systems or services (e.g. Cloud services).

S5: Business Organisation: can apply organisational theory, change management, marketing, strategic practice, human resource management and IT service management to technology solutions development. Develops well-reasoned investment proposals and provides business insights.

S6: IT Project Management: follows a systematic methodology for initiating, planning, executing, controlling, and closing technology solutions projects. Applies industry standard processes, methods, techniques and tools to execute projects. Is able to manage a project (typically less than six months, no inter-dependency with other projects and no strategic impact) including identifying and resolving deviations and the management of problems and escalation processes.

S7: Computer and Network Infrastructure: can plan, design and manage computer networks with an overall focus on the services and capabilities that network infrastructure solutions enable in an organisational context. Identifies network security risks and their resolution.

Core Technical Knowledge (K)

Knows and understands:

K1: How business exploits technology solutions for competitive advantage.

K2: The value of technology investments and how to formulate a business case for a new technology solution, including estimation of both costs and benefits.

K3: Contemporary techniques for design, developing, testing, correcting, deploying and documenting software systems from specifications, using agreed standards and tools.

K4: How teams work effectively to produce technology solutions.

K5: The role of data management systems in managing organisational data and information.

K6: Common vulnerabilities in computer networks including unsecure coding and unprotected networks.

K7: The various roles, functions and activities related to technology solutions within an organisation.

K8: How strategic decisions are made concerning acquiring technology solutions resources and capabilities including the ability to evaluate the different sourcing options.

K9: How to deliver a technology solutions project accurately consistent with business needs.

K10: The issues of quality, cost and time for projects, including contractual obligations and resource constraints.

Core Behavioural Skills (B)

B1: Fluent in written communications and able to articulate complex issues.

B2: Makes concise, engaging and well-structured verbal presentations, arguments and explanations.

B3: Able to deal with different, competing interests within and outside the organisation with excellent negotiation skills.

B4: Is able to identify the preferences, motivations, strengths and limitations of other people and apply these insights to work more effectively with and to motivate others.

B5: Competent in active listening and in leading, influencing and persuading others.

B6: Able to give and receive feedback constructively and incorporate it into his/her own development and life-long learning.

B7: Applies analytical and critical thinking skills to Technology Solutions development and to systematically analyse and apply structured problem solving techniques to complex systems and situations.

B8: Able to put forward, demonstrate value and gain commitment to a moderately complex technology-oriented solution, demonstrating understanding of business need, using open questions and summarising skills and basic negotiating skills.

B9: Able to conduct effective research, using literature and other media, into IT and business related topics.

B10: Have demonstrated that they have mastered basic business disciplines, ethics and courtesies, demonstrating timeliness and focus when faced with distractions and the ability to complete tasks to a deadline with high quality.

B11: Flexible attitude.

B12: Ability to perform under pressure.

B13: A thorough approach to work.

B14: Logical thinking and creative approach to problem solving.

Specialism Outcomes: Data Analyst

Skills

Be able to:

1. Import, cleanse, transform, and validate data with the purpose of understanding or making conclusions from the data for business decision making purposes.
2. Present data visualisation using charts, graphs, tables, and more sophisticated visualisation tools.
3. Perform routine statistical analyses and ad-hoc queries.

4. Use a range of analytical techniques such as data mining, time series forecasting and modelling techniques to identify and predict trends and patterns in data.

5. Report on conclusions gained from analysing data using a range of statistical software tools.

6. Summarise and present results to a range of stakeholders making recommendations.

Technical Knowledge

Knows and understands:

7. The quality issues that can arise with data and how to avoid and/or resolve these.

8. The processes involved in carrying out data analysis projects.

9. How to use and apply industry standard tools and methods for data analysis.

10. The range of data protection and legal issues.

11. The fundamentals of data structures, database system design, implementation and maintenance.

12. The organisation's data architecture.

Annexe 5 - Modules – Level 6 Apprenticeship Standard Matrix

Standard	Core Skills (S)							Core Technical Knowledge (K)										Core Behavioural Skills (B)														Skills						Technical Knowledge					
Year 1	S1	S2	S3	S4	S5	S6	S7	K1	K2	K3	K4	K5	K6	K7	K8	K9	K10	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13	B14	1	2	3	4	5	6	7	8	9	10	11	12
Data Analysis Concepts											✓																					✓	✓		✓	✓							
Statistics for Data Analysis																																		✓									
Database Systems			✓																																							✓	
Data Analytics with Python (I)		✓								✓																										✓			✓	✓			
Data Analytics in Project Management		✓				✓					✓																									✓			✓				
The Ethics of Data Analytics																		✓	✓			✓					✓	✓				✓										✓	

Standard	CORE STANDARD																																			SPECIALISM STANDARD											
	Core Skills (S)							Core Technical Knowledge (K)										Core Behavioural Skills (B)														Skills						Technical Knowledge					
Year 2	S1	S2	S3	S4	S5	S6	S7	K1	K2	K3	K4	K5	K6	K7	K8	K9	K10	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13	B14	1	2	3	4	5	6	7	8	9	10	11	12
Data Analytics with Python (II)		✓								✓																										✓							
Data Visualisation												✓																				✓	✓	✓		✓	✓						
Data Analytics & Business Insight	✓		✓		✓			✓	✓			✓			✓										✓							✓						✓	✓				✓
Artificial Intelligence	✓																														✓				✓					✓			
Network Security				✓		✓							✓																												✓		
Work-based Project					✓	✓							✓			✓	✓	✓	✓							✓				✓		✓	✓			✓	✓	✓					✓

Standard	CORE STANDARD																																	SPECIALISM STANDARD											
	Core Skills (S)							Core Technical Knowledge (K)										Core Behavioural Skills (B)															Skills						Technical Knowledge					
Year 3	S1	S2	S3	S4	S5	S6	S7	K1	K2	K3	K4	K5	K6	K7	K8	K9	K10	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13	B14	1	2	3	4	5	6	7	8	9	10	11	12
Synoptic Project & Dissertation					✓	✓							✓			✓	✓	✓	✓					✓			✓			✓		✓	✓			✓	✓		✓				✓
Work Based Portfolio					✓						✓		✓							✓	✓		✓				✓	✓	✓	✓													
Research Skills & Academic Communications																		✓	✓			✓				✓																	
Data Mining & Warehousing			✓									✓																							✓		✓		✓				✓
Big Data Analytics			✓									✓																								✓		✓		✓			

Annexe 6: Foundation Degree Benchmark Statements (July 2015)

Fd1 - Knowledge and critical understanding of the well-established principles in their field of study and the way in which those principles have developed.

Fd2 - Successful application in the workplace of the range of knowledge and skills learnt throughout

Fd3 - Ability to apply underlying concepts and principles outside the context in which they were first studied, and the application of those principles in a work context.

Fd4 - Knowledge of the main methods of enquiry in their subject(s), and ability to evaluate critically the appropriateness of different approaches to solving problems in their field of study and apply these in a work context.

Fd5 - An understanding of the limits of their knowledge, and how this influences analyses and interpretations based on that knowledge in their field of study and in a work context.

Fd6 - Use a range of established techniques to initiate and undertake critical analysis of information, and to propose solutions to problems arising from that analysis in their field of study and in a work context.

Fd7 - Effectively communicate information, arguments, and analysis, in a variety of forms, to specialist and non-specialist audiences, and deploy key techniques of the discipline effectively in their field of study and in a work context.

Fd8 - Undertake further training, develop existing skills, and acquire new competences that will enable them to assume responsibility within organisations.

Fd9 - Qualities and transferable skills necessary for employment and progression to other qualifications requiring the exercise of personal responsibility and decision-making.

Fd10 - The ability to utilise opportunities for lifelong learning.

Annexe 7: Foundation Degree Benchmark Statements (July 2015)

Programme Outcomes	Benchmark Statements									
Knowledge and understanding	Fd1	Fd2	Fd3	Fd4	Fd5	Fd6	Fd7	Fd8	Fd9	Fd10
A1	x									
A2	x									
A3	x									
A4					x					
A5		x								
A6										
A7	x									
A8	x									
A9										
Cognitive/Intellectual Skills										
B1	x									
B2										
B3		x						x		
B4			x							
B5										
B6						x				
B7					x	x				
B8			x							

Practical/Professional Skills										
C1	x									
C2			x							
C3										
C4	x		x							
Practical/Professional Skills	Fd1	Fd2	Fd3	Fd4	Fd5	Fd6	Fd7	Fd8	Fd9	Fd10
C5		x								
C6										
C7										
C8	x									
C9			x							
C10			x			x				
Key Transferable Skills										
D1						x	x		x	
D2						x	x		x	
D3		x		x					x	
D4		x							x	x
D5										
D6										
D7		x		x					x	x
D8		x							x	