

# PROGRAMME SPECIFICATION

## 1. Key Information

<b>Programme Title:</b>	Digital and Technology Solutions Professional Integrated Degree Apprenticeship
<b>Awarding Institution:</b>	Buckinghamshire New University
<b>Teaching Institution(s):</b>	Buckinghamshire New University
<b>Subject Cluster:</b>	Computing
<b>Award Title (including separate Pathway Award Titles where offered):</b>	BSc (Hons) Digital and Technology Solutions IFATE Certificate in Digital and Technology Solutions Professional- Degree Apprenticeship
<b>Pathways (if applicable)</b>	Option 1: Software engineer Option 2: IT consultant Option 3: Business analyst Option 4: Cyber security analyst Option 5: Data analyst Option 6: Network engineer
<b>FHEQ level of final award:</b>	Level 6: Bachelor's degree with honours
<b>Other award titles available (exit qualifications):</b>	Certificate of Higher Education Diploma of Higher Education
<b>Accreditation details:</b>	N/A
<b>Length of programme:</b>	4 years
<b>Mode(s) of Study:</b>	Part-time
<b>Mode of Delivery:</b>	Work-based learning
<b>Language of study:</b>	English
<b>QAA Subject Benchmark(s):</b>	Computing (2022)
<b>Other external reference points (e.g., Apprenticeship Standard):</b>	<a href="#">ST0119 Digital and Technology Solutions Professional (Version 1.2)</a>
<b>Course Code(s):</b>	BSDTSPAP
<b>UCAS Code(s):</b>	N/A
<b>Approval date:</b>	September 2023
<b>Date of last update:</b>	February 2024

## 2. Programme Summary

The Digital and Technology Solutions Professional Degree Apprenticeship will combine integrated work-based learning with academic study to ensure you will have the skills required to meet business needs and industry standards within the digital and technology landscape.

This degree apprenticeship programme has been co-designed with employers to ensure that you are equipped with the knowledge, skills and behaviours required to succeed in this exciting and innovative industry.

As a Digital and Technology Solutions Professional (DTSP), the broad purpose of your occupation is to evaluate, initiate, create and support business solutions using digital technology across a range of functions. This programme has been designed to ensure you are responsive, resilient, ethical and innovative in delivering business solutions whilst keeping in touch with emerging developments and trends within your chosen specialism with a choice of pathways to support your career aspirations and entry to higher qualifications.

Programme specific occupational pathways:

### **Software Engineer**

The primary role of the Software Engineer is to undertake all requirements during the solution development life cycle from gathering requirements to analysis, design, code, build, test, implementation and support. They may also be required to supervise the work of junior software developers and others who may be working on elements of the solution and work with product managers and UX designers in implementing solutions. They will apply software engineering principles to all stages of the solution life cycle, from gathering requirements, undertaking analysis and design, development of code and data requirements whilst also ensuring security features are addressed. As well as creating new code, they can support existing code by troubleshooting, reverse engineering and conducting root cause analysis. They typically work as part of a large collaborative team and will have responsibility for significant elements of software solutions.

### **IT Consultant**

An IT consultant bridges the gap between users and technology: they reinvent the digital world of the future. They require a broad set of skills in business analysis, solutions development, network infrastructure, data, cyber security etc. They use their consulting skills to get to the root of a problem and advise clients, both externally and internally, on how to best utilise technology to meet their business objectives, overcome problems and increase productivity. They provide strategic guidance and training to clients, both externally and internally, about digital and technology solutions. They facilitate changing business processes, improved structure, and efficiency through enhancements to digital and technology solutions. They design, build and install innovative customer experiences using the latest technologies to win business for their organisation.

### **Business Analyst**

A business analyst is an interpreter between two worlds: business and IT, bridging the gap of understanding between business and technology teams. They analyse and understand business needs and define and manage business requirements. They oversee design and delivery of tested system solutions throughout a project life cycle to ensure these meet business requirements. They are key communicators and drivers of collaboration throughout the development life cycle. They are focused on the customer and work closely with the IT delivery team. They are essential in the development of successful digital and technology solutions through their rigorous analysis of business requirements to inform their recommendations and insight.

### **Cyber Security Analyst**

A Cyber Security Analyst leads in the work to define, implement, and maintain security products and systems within an organisation's policies and service level agreements. They will need to analyse and understand the points of vulnerability within IT systems and a proactive and agile approach to maintain high levels of systems and organisational security. They will monitor security performance using tools, statistical reporting and analysis, using the output of monitoring to problem solve, propose improvements and implement changes to meet service level requirements. A Cyber Security Analyst leads technical implementation of security infrastructures and technical designs, including producing cost and timescale estimates and identifying risks. After implementation they take ownership for obtaining the information required to diagnose and resolve more complex problems and escalations such as security incidents and business recovery. They engage with third parties to jointly resolve in-depth product issues where necessary and completing cyber risk assessments.

### **Data Analyst**

The primary role of a data analyst is to collect, organise and study data to provide new business insight to a range of stakeholders. They are responsible for leading the provision of up-to-date, accurate and relevant data analysis for the organisation. They are typically involved with managing, cleansing, abstracting and aggregating data across the network infrastructure. They look for opportunities to build data driven insights into decision making. They have a current understanding of data structures, software development procedures and the range of analytical tools used to undertake a wide range of standard and custom analytical studies, providing data solutions to a range of business issues. They are comfortable supporting teams and colleagues with analytics and report the results of data analysis activities making recommendations to improve business performance.

### **Network Engineer**

The primary role of a network engineer is to lead in the planning, design, installation, maintenance, and support of communication networks within an organisation or between organisations. They take a proactive and agile approach to maintain high levels of network performance and availability for their users, such as staff, clients, customers, and suppliers. They understand network configuration, cloud, network administration and monitoring tools, and give technical advice and guidance to their users. As part of their role, they analyse system requirements to ensure the network and its services operate to desired levels with security at the heart of everything they do. They understand data traffic and transmission across the network and have a major role to play in ensuring network security and resilience. They are the key problem solver when networks fail and respond with resilience under pressure.

This Digital Technology Solutions Professional Apprenticeship programme develops the higher-level skills and behaviours required to create confident and capable digital and technology professionals. Modules are designed to build strong foundations that are learner centred to ignite curiosity and innovation that enables understanding of the complexity of information systems required to succeed in this sector. Skills and knowledge are assessed in realistic situations to mirror real world scenarios fostering authentic and inclusive opportunities. The curriculum intent is designed to develop the core occupational duties and the learning outcomes are mapped to the apprenticeship standards including embedding of English, mathematics, safeguarding, green skills, enrichment, British values, prevent agenda and career information and guidance.

Work-based projects will enhance your skills in problem solving to identify solutions within the digital and technology industry and develop attributes as influencers within organisations to deliver business objectives.

Apprentices will receive guidance and support throughout their learning journey from the Apprenticeship Hub through regular reviews and contact.

### 3. Programme Aims and Learning Outcomes

#### Programme Aims

This programme aims to:

1. Equip learners with the knowledge and skills that have a high relevance to the learners' workplace and wider industry through work-based learning pedagogy applied to the areas of information systems, systems development, data, cyber security, business organisation, IT project management, computer and network infrastructure.
2. Provide opportunities for learners to apply acquired knowledge and skills in a workplace context as well as through authentic assessments.
3. Build appreciation of wider industry context beyond their own organisation including external factors that can impact an organisation.
4. Develop learners' investigative and research skills, leadership skills, autonomy of study, and ability to approach problems critically within a workplace context.
5. Build learners' ability and confidence to contribute to team-based work and collaboration in the workplace with professional integrity and ethics, emotional intelligence, flexibility, and resilience.
6. Provide learners with a strong foundation to support them in future study, research, and professional development within a range of related roles including their chosen specialisation (Software Engineer, Network Engineer, Cyber Security Analyst, IT Consultant, Data Analyst, or Business Analyst).

#### Programme Learning Outcomes

##### Knowledge and Understanding (K)

On successful completion of the programme you will be able to:

ID	Learning Outcome
<b>K1</b>	Appreciate the fundamentals and underlying theory of computing, programming, networks, software systems, and data management, particularly in the context of distributed/web/cloud-based systems.
<b>K2</b>	Articulate knowledge of software, technology, and systems for supporting different tasks and activities within an organisational context.
<b>K3</b>	Describe and comment upon aspects of current research, or equivalent advanced scholarship prevalent in the project life cycle, alongside their outputs and dependencies between stages, including the ethical, professional, environmental and legal considerations, as well as the impact of cloud computing and AI.
<b>K4</b>	Recognise the need for the efficient as well as effective management of digital and technology solutions within a professional framework being aware of the business, industrial, commercial, and social context.

### Analysis and Criticality (C)

On successful completion of the programme you will be able to:

ID	Learning Outcome
<b>C1</b>	Assess concepts and data, make judgements, and frame appropriate questions to achieve a solution to the development of digital technology systems in a logical, analytical and ethical manner.
<b>C2</b>	Analyse current and future digital technologies with corresponding reference to a range of systems architectures including those underpinned by web/cloud-based technology.
<b>C3</b>	Scrutinise the safety, legal, environmental, ethical aspects and risks associated with various digital and technology solutions using advanced intellectual, analytical, creative, and problem-solving skills.
<b>C4</b>	Recommend appropriate and innovative plans, approaches and solutions to technological issues within a quality assurance and testing framework weighed against quality of service, user needs, and business needs within computing, web, and cloud-based contexts.
<b>C5</b>	Evaluate critically a digital technology system in terms of quality, challenges, motivations, benefits, and associated trade-offs, whilst appreciating society's increased dependence on nascent technology.

### Application and Practice (P)

On successful completion of the programme you will be able to:

ID	Learning Outcome
<b>P1</b>	Devise and sustain social and ethical arguments in order to solve problems, using ideas and techniques, some of which are at the forefront of the computing and web/cloud-based disciplines.
<b>P2</b>	Investigate professional codes of conduct and appreciate the ethical considerations that underpin the acceptance and adoption of digital technology in society by professionals, individuals, and society in general.
<b>P3</b>	Demonstrate robust engineering principles in all stages of the digital solution development process, from requirements gathering, analysis and design, data modelling, development, and testing.
<b>P4</b>	Apply a range of specialist technology tools along with appropriate organisational theories and techniques to address the needs of complex situations.
<b>P5</b>	Produce a final year project within a workplace context involving the key processes of analysis, design, implementation, and testing, underpinned by the associated product documentation

### Transferable skills and other attributes (T)

On successful completion of the programme you will be able to:

ID	Learning Outcome
<b>T1</b>	Communicate data, ideas, problems, and solutions to both specialist and non-specialist audiences effectively in written and verbal formats, using presentation formats appropriate to the audience.

<b>T2</b>	Take responsibility for the planning, managing, and recording of their continuing learning and professional development.
<b>T3</b>	Contribute to a safe and supportive working environment while engaging with effective team-based work and collaboration.
<b>T4</b>	Conduct yourself in a professional and confident manner when interacting with others, maintaining high standards of mutual respect and tolerance
<b>T5</b>	Work independently, with limited guidance and supervision, undertaking significant tasks such as research and development projects.

## Graduate Attributes

The BNU Graduate Attributes of: Knowledge and its application; Creativity; Social and ethical awareness and responsibility; and Leadership and self-development focus on the development of innovative leaders in professional and creative capacities, who are equipped to operate in the 21st Century labour market and make a positive impact as global citizens.

On this programme, attributes are developed through equipping learners with the knowledge (**K1-4**), skills (**P1-5**), understanding, insight, and perspectives necessary to perform the role of a Digital and Technology Solutions professional within small, medium, or large organisations in any industry. Creativity is developed through scrutiny of various theories and case studies (**C3, C4**) paired with the opportunities for learners to apply their creativity to work-based problems (**P4, P5**) and explore wider topics to develop their interests and talents. Social and ethical awareness and responsibility is tackled from various angles including environmental sustainability and the societal impact of technology (**K3, C3, C5, P1, P2**). The relevance of Safeguarding, Prevent, and British Values is linked to organisational theory leadership in the modern workplace (**T3, T4**). As well as helping learners develop their Maths skills (**K1**) and critical thinking (**C1, C2**), the programme helps learners develop transferable skills which equip them with leadership capabilities, the ability for autonomous self-development, as well as strong verbal and written English communication skills (**T1-5**).

## 4. Entry Requirements

The University's [general entry requirements](#) will apply to admission to this programme with the following additions / exceptions:

Apprentices will typically work at least 30 hours per week (FT) and complete 6 hrs per week off the job training, however some may work less than 30 hours per week (PT) and would still be eligible for an apprenticeship, but a PT programme's duration would be extended in line with UK Government apprenticeship funding rules.

Apprentices must have the right to live and work in the UK (applies only in England) and cannot be self-employed. The employer must enter into an Apprenticeship Agreement with the learner.

All candidates must be employed in a role related to the subject matter of the Degree Apprenticeship and be sponsored by their employer. Applications can only be made through the sponsoring employer. The University will consider all such applications and will have the final decision whether to accept the candidate for entry to the programme.

The recommended minimum entry requirements for Level 4 entry to the programme are:

- A-Levels or other equivalent Level 3 qualifications.

- English and Maths at Level 2.

Applications are welcomed from those with qualifications equivalent to the above, for instance from Access Certificate courses. Relevant or prior experience will be taken into account when considering a candidate's suitability for the programme. Where an applicant does not have the GCSE qualification the University will provide mechanisms to enable the apprentice to obtain Maths and English Level 2 qualifications.

All learners take an online initial assessment- Basic Key Skills Builder (BKSB) to assess and develop skills in English and maths to support functional skills requirements. Something all apprentices must achieve before taking their End Point Assessment (EPA).

Previous study, professional and / or vocational experiences may be recognised as the equivalent learning experience and permit exemption from studying certain modules in accordance with our [accreditation of prior learning](#) (APL) process.

## 5. Programme Structure

### Software Engineering Pathway

Level	Modules (Code, Title and Credits)	Exit Awards
<b>Level 4</b>	COM4023 Programming Concepts (20 credits) COM4026 Work-based Learning (20 credits) COM4024 Data Fundamentals (20 credits) COM4025 Academic Skills & Reflective Practice (20 credits) COM4027 Project Management (20 credits) COM4022 Networking (20 credits)	<b>Certificate of Higher Education</b> , awarded on achievement of 120 credits at Level 4
<b>Level 5</b>	COM5042 Software Engineering (20 credits) COM5043 Object Oriented Programming (20 credits) COM5044 Organisational Skills and Behaviours (20 credits) COM5045 Work-Based Research Project (20 credits) COM5041 Web Programming (20 credits) COM5049 Information Security (20 credits)	<b>Diploma of Higher Education</b> , awarded on achievement of 240 credits, including a minimum of 120 credits at Level 5
<b>Level 6</b>	COM6033 Cloud Computing (20 credits) COM6031 Design Patterns (20 credits) COM6036 Digital Innovation (20 credits) COM6035 Advanced Workplace Practice (30 credits) COM6034 End Point Assessment (30 credits)	<b>Ordinary Degree</b> , awarded on achievement of 300 credits, including 60 credits at Level 6 and 120 credits at each of Levels 4 and 5  <b>Honours Degree</b> , awarded on achievement of 360 credits, including 120 credits at each of Levels, 4, 5 and 6



**IT Consultant Pathway**

<b>Level</b>	<b>Modules (Code, Title and Credits)</b>	<b>Exit Awards</b>
<b>Level 4</b>	COM4023 Programming Concepts (20 credits) COM4026 Work-based Learning (20 credits) COM4024 Data Fundamentals (20 credits) COM4025 Academic Skills & Reflective Practice (20 credits) COM4027 Project Management (20 credits) COM4022 Networking (20 credits)	<b>Certificate of Higher Education</b> , awarded on achievement of 120 credits at Level 4
<b>Level 5</b>	COM5038 Introduction to IT Consulting (20 credits) COM5053 Business Intelligence (20 credits) COM5037 IT Governance (20 credits) COM5049 Information Security (20 credits) COM5044 Organisational Skills and Behaviours (20 credits) COM5045 Work-Based Research Project (20 credits)	<b>Diploma of Higher Education</b> , awarded on achievement of 240 credits, including a minimum of 120 credits at Level 5
<b>Level 6</b>	COM6033 Cloud Computing (20 credits) COM6039 Legal Aspects in IT (20 credits) COM6036 Digital Innovation (20 credits) COM6035 Advanced Workplace Practice (30 credits) COM6034 End Point Assessment (30 credits)	<b>Ordinary Degree</b> , awarded on achievement of 300 credits, including 60 credits at Level 6 and 120 credits at each of Levels 4 and 5  <b>Honours Degree</b> , awarded on achievement of 360 credits, including 120 credits at each of Levels, 4, 5 and 6

**Business Analyst Pathway**

<b>Level</b>	<b>Modules (Code, Title and Credits)</b>	<b>Exit Awards</b>
<b>Level 4</b>	COM4023 Programming Concepts (20 credits) COM4026 Work-based Learning (20 credits) COM4024 Data Fundamentals (20 credits) COM4025 Academic Skills & Reflective Practice (20 credits) COM4027 Project Management (20 credits) COM4022 Networking (20 credits)	<b>Certificate of Higher Education</b> , awarded on achievement of 120 credits at Level 4
<b>Level 5</b>	COM5036 Business Analysis (20 credits) COM5053 Business Intelligence (20 credits) COM5054 Business Continuity Management (20 credits) COM5049 Information Security (20 credits) COM5044 Organisational Skills and Behaviours (20 credits) COM5045 Work-Based Research Project (20 credits)	<b>Diploma of Higher Education</b> , awarded on achievement of 240 credits, including a minimum of 120 credits at Level 5
<b>Level 6</b>	COM6033 Cloud Computing (20 credits) COM6037 Change Management (20 credits) COM6036 Digital Innovation (20 credits) COM6035 Advanced Workplace Practice (30 credits) COM6034 End Point Assessment (30 credits)	<b>Ordinary Degree</b> , awarded on achievement of 300 credits, including 60 credits at Level 6 and 120 credits at each of Levels 4 and 5  <b>Honours Degree</b> , awarded on achievement of 360 credits, including 120 credits at each of Levels, 4, 5 and 6

**Cyber Security Analyst Pathway**

Level	Modules (Code, Title and Credits)	Exit Awards
<b>Level 4</b>	COM4023 Programming Concepts (20 credits) COM4026 Work-based Learning (20 credits) COM4024 Data Fundamentals (20 credits) COM4025 Academic Skills & Reflective Practice (20 credits) COM4027 Project Management (20 credits) COM4022 Networking (20 credits)	<b>Certificate of Higher Education</b> , awarded on achievement of 120 credits at Level 4
<b>Level 5</b>	COM5047 Introduction to Cyber Security (20 credits) COM5048 IT Risk Management (20 credits) COM5050 Malware and Cyber Security Management (20 credits) COM5049 Information Security (20 credits) COM5044 Organisational Skills and Behaviours (20 credits) COM5045 Work-Based Research Project (20 credits)	<b>Diploma of Higher Education</b> , awarded on achievement of 240 credits, including a minimum of 120 credits at Level 5
<b>Level 6</b>	COM6040 Security Auditing and Response (20 credits) COM6038 Network Security (20 credits) COM6036 Digital Innovation (20 credits) COM6035 Advanced Workplace Practice (30 credits) COM6034 End Point Assessment (30 credits)	<b>Ordinary Degree</b> , awarded on achievement of 300 credits, including 60 credits at Level 6 and 120 credits at each of Levels 4 and 5  <b>Honours Degree</b> , awarded on achievement of 360 credits, including 120 credits at each of Levels, 4, 5 and 6

**Data Analyst Pathway**

<b>Level</b>	<b>Modules (Code, Title and Credits)</b>	<b>Exit Awards</b>
<b>Level 4</b>	COM4023 Programming Concepts (20 credits) COM4026 Work-based Learning (20 credits) COM4024 Data Fundamentals (20 credits) COM4025 Academic Skills & Reflective Practice (20 credits) COM4027 Project Management (20 credits) COM4022 Networking (20 credits)	<b>Certificate of Higher Education</b> , awarded on achievement of 120 credits at Level 4
<b>Level 5</b>	COM5051 Data Analysis (20 credits) COM5053 Business Intelligence (20 credits) COM5039 Big Data (20 credits) COM5049 Information Security (20 credits) COM5044 Organisational Skills and Behaviours (20 credits) COM5045 Work-Based Research Project (20 credits)	<b>Diploma of Higher Education</b> , awarded on achievement of 240 credits, including a minimum of 120 credits at Level 5
<b>Level 6</b>	COM6033 Cloud Computing (20 credits) COM6030 Data Science (20 credits) COM6036 Digital Innovation (20 credits) COM6035 Advanced Workplace Practice (30 credits) COM6034 End Point Assessment (30 credits)	<b>Ordinary Degree</b> , awarded on achievement of 300 credits, including 60 credits at Level 6 and 120 credits at each of Levels 4 and 5  <b>Honours Degree</b> , awarded on achievement of 360 credits, including 120 credits at each of Levels, 4, 5 and 6

**Network Engineer Pathway**

Level	Modules (Code, Title and Credits)	Exit Awards
<b>Level 4</b>	COM4023 Programming Concepts (20 credits) COM4026 Work-based Learning (20 credits) COM4024 Data Fundamentals (20 credits) COM4025 Academic Skills & Reflective Practice (20 credits) COM4027 Project Management (20 credits) COM4022 Networking (20 credits)	<b>Certificate of Higher Education</b> , awarded on achievement of 120 credits at Level 4
<b>Level 5</b>	COM5046 Network Administration (20 credits) COM5048 IT Risk Management (20 credits) COM5040 Network Systems (20 credits) COM5049 Information Security (20 credits) COM5044 Organisational Skills and Behaviours (20 credits) COM5045 Work-Based Research Project (20 credits)	<b>Diploma of Higher Education</b> , awarded on achievement of 240 credits, including a minimum of 120 credits at Level 5
<b>Level 6</b>	COM6032 Cloud Networking (20 credits) COM6038 Network Security (20 credits) COM6036 Digital Innovation (20 credits) COM6035 Advanced Workplace Practice (30 credits) COM6034 End Point Assessment (30 credits)	<b>Ordinary Degree</b> , awarded on achievement of 300 credits, including 60 credits at Level 6 and 120 credits at each of Levels 4 and 5  <b>Honours Degree</b> , awarded on achievement of 360 credits, including 120 credits at each of Levels, 4, 5 and 6

## 6. Learning, Teaching and Assessment

### Learning and teaching

The programme has been designed for online-first delivery which means it can be delivered fully online for fully remote learners. Some modules have face-to-face learning days embedded in their delivery schedule where collaborative learning can be enhanced by on campus activities. All face-to-face learning is nonetheless delivered as hybrid learning so that remote learners can be virtually present for activities happening on campus.

The inclusive approach to online-first delivery is supported by a diverse set of accessible learning experiences and materials:

- **Live Lectures** – accompanied by lecture slides and guidance notes
- **Pre-recorded Lecture Videos** – provided with captions and adjustable playback speed for accessibility.
- **Curated Video Content** – third-party video materials which support knowledge acquisition.
- **Collaborative activities** – both *asynchronous* and *synchronous* (live) activities such as whiteboarding, discussion threads, or gathering research using collaborative digital tools
- **Discussions** – *synchronous* (live) flipped classroom discussions based on pre-released questions or topics.
- **Demonstrations** – both live and pre-recorded demonstrations of technical aspects of the curriculum.
- **Knowledge Checks** – in the form of live in-class quizzes or formative tests taken at learner's own pace
- **Practical workshops** – structured workshops for both individual and team-based work to support the development of skills required for practical assessments
- **Tutorials** – one-to-one support provided via Instant Messaging, Audio/Video call, or face-to-face by module tutors, personal tutors, and Apprenticeship Partner Manager (APM)
- **Instant Messaging support** – provided on a one-to-one basis, as well as team-based and class-based group chat channels
- **Guest speakers** – from within BNU as well as from industry

The spiral curriculum approach is made manifest in various aspects of the programme, as outlined in some examples below:

- Academic Skills, Report Writing, and Research are introduced at Level 4 in the “**Academic Skills and Reflective Practice**” module then re-visited in more depth at Level 5 in the “**Work-based Research Project**” module which allows learners to apply the concepts in a larger-scale project. “**Advanced Workplace Practice**” at Level 6 digs even deeper into more advanced Research Concepts and exposes learners to previously learned concepts in the context of a Final Project Report (dissertation)
- “**Data Fundamentals**” at Level 4 lays the foundation for various modules on different pathways such as:
  - Software Engineering pathway: “**Web Programming**” at Level 5 uses the fundamental data concepts from Level 4 to build a database component for a web application.
  - Data Analyst pathway: as expected with this pathway, Data is a recurring topic and the fundamentals at Level 4 are expanded upon at Level 5 in “**Data Analysis**” and “**Big Data**”. This provides a solid foundation for the “**Data**

**Science**” module at Level 6 which, in turn, consolidates and expands upon advanced data practices readying Data Analyst apprentices for their End Point Assessment.

## Curriculum Structure

The curriculum is based around the University’s Work-Based Learning Framework, utilising a combination of:

- Core subject modules, designed to give a platform for the development of technical **knowledge** and **skills** relevant to the named apprenticeship standard pathway (220 credits across the course)
- Personal and Professional Development (PPD) modules, created as vehicles to motivate the personal and professional development of the apprentice through completion of work-based investigations and projects (80 credits across the course). These modules also help apprentices develop and evidence the **professional behaviours** from the apprenticeship standard as well as **Maths** and **English** skills.
- Advanced Workplace Practice module (30 credits) at Level 6 to prepare learners for End Point Assessment
- Integrated End Point Assessment module (30 credits) at Level 6

There is an expectation that an apprentice will spend a minimum of 6 hours of their working week undertaking off-the-job training. This is broadly equivalent to one day per week for the duration of the course.

The format and schedule to support the delivery and supervision of all modules has then been established with this principle in mind. All modules are appropriately designated as being work-based learning modules although there will be some justified variation in the relative proportions of SLTA (Scheduled Learning and Teaching Activities), GIS (Guided Independent Study) and WBL (work-based learning) that aggregate to afford the ‘notional learning hours’ for a particular module. Some key features are summarised below:

- in addition to the WBL, SLTA and GIS, apprentices will be further supported by inclusive online materials as well as synchronous and asynchronous interactions with their tutors for the duration of the course.
- learners will be expected to relate concepts, skills and other content covered in the modules to learning and development in their workplace context and to undertake Guided Independent Study (GIS); there will be opportunities for using workplace scenarios, problems and case studies to complete activities and assignments.
- within the Final Project, the apprentice will undertake a significant work-based project under the guidance of an academic supervisor and a workplace mentor; regular reviews, meetings and communications will help to keep the learner on track with their work alongside some group briefings, workshops and tutorials.

The Apprenticeship programme, as well as its Programme Learning Outcomes, is based upon the requirements of the relevant Standard for Digital and Technology Solutions Professional, which specifies the Knowledge, Skills and Behaviours (KSBs) that the apprentice should acquire across the Degree programme, including the associated learning, development and application in the workplace. The apprentice’s learning journey is then supported and progressed by an appropriately designed curriculum and a complementary assessment approach across the programme. Early modules (Level 4) introduce awareness about technology, its importance and utilisation in the business context, and allow the apprentice to establish foundational skills. Knowledge and skills continue to build through the

Level 5 and Level 6 stages of the programme as the apprentice gains more experience in the workplace and can better use and apply their knowledge and skills, leading to further improvements in their professional competence.

The level and person development associated with a module is additionally benchmarked against the SFIA (Skills Framework for the Information Age), a model for describing competency and responsibility levels of ICT and digital professionals. Thus, a Level 4 module has a strong emphasis on knowledge and comprehension relevant to the occupation or discipline, corresponding to the SFIA capabilities of 'FOLLOW' and 'ASSIST'; such that the apprentice is heavily reliant on the structured advice and guidance from the tutor and workplace mentor, and has a restricted perspective. A Level 5 module is characterised by the evaluation of problems and scenarios, and the application of an apprentice's knowledge and skills to design, define, develop and implement technical solutions; this reflects the SFIA capabilities of 'APPLY' and 'ENABLE', such that the apprentice is beginning to contextualise their learning, recognise the inter-relationships between different modules, and work effectively with others to solve problems. A Level 6 module extends the learner further to employ synthesis and evaluation when making critical judgements that underpin the creation of innovative solutions to complex problems, moving through the domains of 'ENABLE', 'ENSURE' and 'ADVISE' in terms of SFIA competencies. The apprentice should now have acquired a good range of interpersonal skills, including professional and confident communication, being able to work independently and collaboratively to interrogate and complete diverse and challenging projects. They can also take significant responsibility for directing and managing their own personal development.

A range of assessments are used on the programme, including different written assignments, practical activities, exams, presentations, and projects. The level of difficulty will increase as the apprentice moves from Level 4 to Level 5 to Level 6, reflecting the parallel progression in their learning, development and competency. Furthermore, the apprentice and the workplace mentor can provide organisational contexts for the completion of assignments, so the apprentice can apply knowledge and practice skills from the curriculum to work-related problems and projects.

There is a general approach adopted for the delivery of those strongly technical modules that have a relatively high reliance on SLTA. Core material about topics will tend to be delivered by a lecture or presentation. A demonstration is then often used as an introduction to some practical activity or problem-solving exercise, which encourages 'learning by doing' where learners can review and reinforce their understanding of topics, working either individually or as part of a group. The tutor will monitor and supervise learners, providing guidance, assistance and encouragement as and when required. Tutor feedback to learners about their progress, learning and development is not confined to formal pieces of summative assessment, where marks, grades and comments are provided; it is rather seen as a fundamental part of an ongoing dialogue between the tutor and the learners, where regular reviews and discussions focus on areas of relative strength and weakness, leading into suggestions about how improvements can be achieved. Within this context, learners get to appreciate the importance of taking responsibility for their own learning and development and making use of feedback.

The regular live (synchronous) sessions will be further supported by additional virtual content and online digital materials. A virtual learning environment (VLE) will support and guide the learning and development of the learner when they are away from the classroom. The tutor will make use of the VLE to provide tuition and supervision to the learners and maintain good interaction and communication with and between the learners throughout the module.



Learners will be encouraged to keep a logbook or notebook that documents their work and provides a record of what they have done and learned. Keeping a good set of notes, developed with supporting reading and research, is viewed as an important element of the learning process and does provide reference material that can be used to complete tasks, projects and other coursework, including preparation for review meetings and tests. Learners are expected to participate and engage fully with the module, with guided learning and independent learning being necessary extensions to the face-to-face and online tuition provided.

Modules should not be viewed as isolated units of learning but rather as a collection of inter-related modules that work together to support the holistic development of the apprentice, in and out of their workplace.

## Work-Based Learning

Work-based learning (WBL) modules will allow the apprentice to apply and extend upon the knowledge and skills covered in Scheduled Teaching and Learning Activities (SLTA) when undertaking activities and projects in their place of work. These modules will also provide a vehicle for the apprentice to take responsibility for planning, achieving and recording their personal and professional development.

The principles for WBL are:

- Emphasis on learning that takes place in the workplace rather than in educational institutions.
- It is intrinsically different from mainstream higher education and for some is more demanding than more traditional didactic learning.
- The nature of learning at work moves the focus of responsibility firmly into the hands of the learner.
- Individual learners are required not only to take responsibility for identifying their learning needs and aspirations but also for managing the learning process.

WBL has the following characteristics:

- Management through a three-way partnership between the HEI, employee, and employer.
- Programmes and curricula derived from the needs of the workplace and the learner, as well as the subject itself as outlined in the standard.
- Delivery in part in the workplace.
- Assessment by both workplace assessors and HEI.

## Assessment Strategies

Across all modules written feedback and feedforward comments are intended to direct learners towards achieving results at summative stages which have been successfully evolved and resolved.

Feedforward comments focus on what is required to develop learners' work further or to achieve higher grades.

**Formative feedback** is delivered prior to assessment deadlines to help learners gauge their progress and make improvements within a module/project before their summative assessment.

Learners also contribute to the formative feedback process where informal peer-to-peer feedback can be given during group tutorials, discussing each other's work constructively as they would be expected to do in the workplace.

Throughout all levels of the programme, opportunities for authentic assessment and work-based projects are embedded.

Tutors thoroughly assess submitted work and produce written **summative feedback** and percentage grades. Feedback comments focus on the successes and strengths achieved within the submission as well as opportunities to improve in future assessments.

Where appropriate, learners are offered individual tutorials to discuss their feedback and grades to ensure they understand the marks awarded and how best to progress.

A variety of assessment types designed to enhance the learning experience are used throughout the programme, as appropriate to specific modules:

- Reports (individual and group)
- Laboratory exercises and report
- Portfolios
- Exams
- Set Exercises - to be completed as required usually in the learner's own time
- Written Assignments
- Presentations (such as poster and oral, individual and group)
- Project Outputs – often technical in nature
- Video Demonstrations – often of project outputs
- Proposals
- EPA: Dissertation, Presentation, and Professional discussion

Both formative and summative approaches will be used throughout the assessment process. Formative assessments will be used in the early stages of each module and as the learner progresses the summative approach will be used. Assessments will often be a work-based activity and assignments drawn from the apprentice's workplace.

## **End Point Assessment**

Once the practical training period has been achieved, apprentices are prepared for their End Point Assessment (EPA).

EPAs are a synoptic assessment of the knowledge, skills and behaviours that have been learnt throughout the apprenticeship. The purpose of the EPA is to make sure the apprentice meets the standard set by employers and is fully competent in the occupation.

The detail of the EPA is described in the EPA Plan associated with the standard.

Prior to being eligible for the EPA, the apprentice will need to successfully meet the 'Gateway' requirements as determined by the standard. The employer and training provider will review their apprentice's knowledge, skills and behaviours to see if they have met the minimum requirements of the apprenticeship set out in the apprenticeship standard and are ready to take the assessment.

To meet the minimum requirements set out in the apprenticeship standard an apprentice needs to:

- Display occupational competency

- Have evidence of or pass functional skill levels in English and Maths
- Complete mandatory training
- Meet the minimum duration for their apprenticeship training

Only apprentices who complete gateway successfully can start the EPA.

The EPA process will involve an independent end point assessor (IEPA) who is working in - or has sufficient knowledge of - the occupation, in order to comply with Institute for Apprenticeships & Technical Education (IfATE) guidelines.

## Contact Hours

Protected learning time (PLT) is typically provided through a day release model by employers during worktime throughout the programme (minimum of 6 hours per week for off-the-job training).

## 7. Programme Regulations

This programme will be subject to the following assessment regulations:

- *Regulations for Taught Degree Programmes (2023)*

## 8. Support for learners

The following systems are in place to support you to be successful with your studies:

- The appointment of a personal tutor to support you through your programme
- Allocation of an Apprenticeship Partner Manager (APM) or the Apprenticeship Reviewer (AR) who will carry out tripartite reviews with you and your employer to support your journey and progression. The APM/AR will work as a mentor/coach to develop your knowledge, skills and behaviours that will be evidenced in your online reflective journal (Aptem)
- Information, Advice and Guidance (IAG) will be provided through; a Programme handbook, Induction, access to Library resources, includes access to books, journals, and databases - many of which are available in electronic format – and support from trained library staff to support your apprenticeship throughout your course.
- IAG will also be provided for career progression purposes.
- Access to Blackboard, our Virtual Learning Environment (VLE), which is accessible via PC, laptop, tablet or mobile device
- Access to the MyBNU portal where you can access all University systems, information and news, record your attendance at sessions, and access your personalised timetable
- Academic Registry staff providing general guidance on University regulations, exams, and other aspects of students and course administration
- Central student services, including teams supporting academic skills development, career success, student finance, accommodation, chaplaincy, disability and counselling
- Support from the Bucks Students' Union, including the Students' Union Advice Centre which offers free and confidential advice on University processes.

## 9. Programme monitoring and review

BNU has a number of ways for monitoring and reviewing the quality of learning and teaching on your programme. You will be able to comment on the content of their programme via the following feedback mechanisms:

- Formal feedback questionnaires and anonymous module 'check-ins'
- Participation in external surveys
- Programme Committees, via appointed student representatives
- Informal feedback to your programme leader

Quality and standards on each programme are assured via the following mechanisms:

- An initial event to approve the programme for delivery
- An annual report submitted by the External Examiner following a process of external moderation of work submitted for assessment
- The Annual Monitoring process, which is overseen by the University's Education Committee
- Review by the relevant PSRB(s)
- Periodic Subject Review events held every five years
- Other sector compliance and review mechanisms

## 10. Internal and external reference points

Design and development of this programme has been informed by the following internal and external reference points:

- The Framework for Higher Education Qualifications (FHEQ)
- The QAA Subject Benchmark Statement – see detailed mapping below
- The QAA Higher Education in Apprenticeships Characteristics Statement
- The Apprenticeship Standard – see detailed mapping below
- The BNU Qualifications and Credit Framework
- The BNU Grading Descriptors
- The University Strategy

### Mapping of Subject Benchmark Statement and any relevant Apprenticeship Standard to Programme Learning Outcomes

Subject Benchmark Statement / Apprenticeship Standard:	Knowledge and understanding (K)				Analysis and Criticality (C)					Application and Practice (P)					Transferable skills and other attributes (T)				
	K1	K2	K3	K4	C1	C2	C3	C4	C5	P1	P2	P3	P4	P5	T1	T2	T3	T4	T5
<b>Subject knowledge understanding and skills/</b> Demonstrate an exceptional understanding of the main body of knowledge for their subject and be able to exercise insightful and critical judgement in the use of that knowledge. Be creative and innovative in the application of the principles covered in the curriculum, and be able to go beyond what has been taught in classes	X	X	X	X	X	X	X	X				X	X	X					
<b>Intellectual skills/</b> Critically analyse and apply a wide range of concepts, principles and					X	X	X	X	X	X									

Subject Benchmark Statement / Apprenticeship Standard:	Knowledge and understanding (K)				Analysis and Criticality (C)					Application and Practice (P)					Transferable skills and other attributes (T)				
	K1	K2	K3	K4	C1	C2	C3	C4	C5	P1	P2	P3	P4	P5	T1	T2	T3	T4	T5
practices of the subject in the context of open scenarios, showing refined judgement and adaptability in the selection and use of tools and techniques																			
<b>Computational problem-solving/</b> Be able to demonstrate sophisticated judgement, critical thinking, research design, and well-developed problem-solving skills with a high degree of autonomy, and to create highly effective computational artefacts across complex and unpredictable circumstances					X	X	X	X				X	X	X					

Subject Benchmark Statement / Apprenticeship Standard:	Knowledge and understanding (K)				Analysis and Criticality (C)					Application and Practice (P)					Transferable skills and other attributes (T)				
	K1	K2	K3	K4	C1	C2	C3	C4	C5	P1	P2	P3	P4	P5	T1	T2	T3	T4	T5
<b>Practical skills across the computing lifecycle/</b> Demonstrate the ability to undertake problem identification and analysis to appropriately design, develop, test, integrate or deploy a highly complex computing system and any associated artefacts; deeply understand the relationship between stages and be able to demonstrate related sophisticated problem-solving and evidence-informed evaluative skills			X	X	X				X			X	X	X					
<b>Interpersonal and team working Skills/</b> Demonstrate the ability to work in a highly proactive and accomplished manner, including as a leading member of a team, making excellent use of				X									X	X	X	X	X	X	X

Subject Benchmark Statement / Apprenticeship Standard:	Knowledge and understanding (K)				Analysis and Criticality (C)					Application and Practice (P)					Transferable skills and other attributes (T)				
	K1	K2	K3	K4	C1	C2	C3	C4	C5	P1	P2	P3	P4	P5	T1	T2	T3	T4	T5
tools and techniques to proficiently communicate, manage tasks and plan projects with minimum guidance																			
<b>Professional practice covering Equality, diversity and inclusion, Sustainability and Entrepreneurship and enterprise education/</b> Identify best-of-kind practices and effect highly principled solutions within a professional, legal and ethical framework to consistently address a wide breadth of relevant considerations – including data management and use, security, equality, diversity and inclusion (EDI) and sustainability – in the work that they undertake			X				X		X	X	X						X		



### Mapping of Programme Learning Outcomes to Modules

Programme Learning Outcome	Knowledge and understanding (K)				Analysis and Criticality (C)					Application and Practice (P)					Transferable skills and other attributes (T)				
	K1	K2	K3	K4	C1	C2	C3	C4	C5	P1	P2	P3	P4	P5	T1	T2	T3	T4	T5
<b>Level 4</b>																			
Programming Concepts	X	X			X							X			X				X
Data Fundamentals	X	X			X			X				X							X
Project Management		X	X	X				X				X	X		X			X	X
Networking	X	X											X						
Work-based Learning				X							X					X	X	X	
Academic Skills & Reflective Practice				X							X					X	X	X	
<b>Level 5</b>																			
Software Engineering	X		X	X	X						X	X			X		X	X	
Object Oriented Programming	X	X			X							X					X		X
Web Programming	X	X			X	X						X							X
Information Security			X	X			X	X					X						
Introduction to IT Consulting			X	X	X		X	X			X	X	X		X			X	
Business Intelligence		X			X	X		X					X		X				X
IT Governance			X	X			X			X	X							X	

Programme Learning Outcome	Knowledge and understanding (K)				Analysis and Criticality (C)					Application and Practice (P)					Transferable skills and other attributes (T)				
	K1	K2	K3	K4	C1	C2	C3	C4	C5	P1	P2	P3	P4	P5	T1	T2	T3	T4	T5
Business Analysis			X	X	X			X	X		X				X			X	
Business Continuity Management			X	X		X		X	X	X					X			X	
Introduction to Cyber Security		X	X	X		X				X					X				
IT Risk Management		X	X	X		X	X	X	X	X					X			X	
Malware and Cyber Security Management		X	X	X		X	X	X	X	X			X		X			X	
Data Analysis	X	X			X			X				X	X		X				X
Big Data	X	X			X			X				X	X		X				X
Network Administration		X	X	X	X		X	X		X	X				X			X	
Network Systems	X	X										X	X						
Organisational Skills and Behaviours			X	X			X		X	X	X					X	X	X	
Work-Based Research Project			X	X			X		X	X	X				X	X	X	X	X
<b>Level 6</b>																			
Design Patterns	X	X			X							X	X		X				X
Legal Aspects of IT			X			X	X			X	X							X	X
Change Management			X							X	X							X	X

Programme Learning Outcome	Knowledge and understanding (K)				Analysis and Criticality (C)					Application and Practice (P)					Transferable skills and other attributes (T)				
	K1	K2	K3	K4	C1	C2	C3	C4	C5	P1	P2	P3	P4	P5	T1	T2	T3	T4	T5
Security Auditing and Response		X				X	X	X		X		X	X						X
Network Security	X	X				X	X	X				X	X		X				X
Cloud Computing	X	X			X	X		X		X		X	X		X			X	X
Data Science	X	X	X		X		X	X		X		X	X		X			X	X
Cloud Networking	X	X					X	X				X	X		X				X
Digital Innovation		X	X	X	X	X	X	X	X	X	X	X	X		X		X	X	X
Advanced Workplace Practice			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
End Point Assessment			X	X	X	X	X	X	X	X	X	X	X	X	X			X	X

**Link to KSB mapping of Digital and Technology Solutions Professional Integrated Degree Apprenticeship**

[TIG Apprenticeship KSB Mapping L6 DTSP 1.2.xlsx](#)