Digital & Technology Solutions Degree Apprenticeship: Data Analytics Knowledge, Skills and Behaviours

This reference document is intended to help you understand the Digital & Technology Solutions (DTS) Professional Degree Apprenticeship Standard and the expected knowledge, skills and behaviours that Apprentices will develop through both the workplace and university teaching.

What is an Apprenticeship Standard?

An Apprenticeship Standard outlines the *knowledge, skills* and *behaviours* (KSBs) that Apprentices will develop over the course of their Apprenticeship.

All Apprenticeship standards can be found on the Institute for Apprenticeships & Technical Education website and the DTS Professional Degree Apprenticeship Standard can be found here.

However, we have created this document for Employers and Apprentices to help you understand your standard and all of the KSBs you will develop throughout the four years on programme.

KSBs: Why are they important to me?

Apprentices on our DTS Professional Degree Apprenticeship you will develop:
• Core technical knowledge and skills (page 2 and 4)
• Pathway specific knowledge and skills (page 3 and 5)
• Core behaviours (page 6 and 7)

The KSBs for this Apprenticeship programme were defined by employers and industry-experts and Manchester Metropolitan University have carefully planned our programme to ensure that the standard has been fully integrated and is met through our teaching. A detailed view of how the KSBs are mapped to the units taught on this programme can be found on page 8. It is also expected that these KSBs will be developed through workplace activities and projects. Apprentices will complete a Skills Scan at the start of each year to monitor progress towards these KSBs and KSB development will be discussed in review meetings with an Apprentices allocated Skills Coach.

At End Point Assessment, Apprentices will be assessed on the KSBs they have demonstrated through their final Synoptic Assessment.

Core Technical Knowledge (CTK)

A Data Analyst knows and understands:

CTK1	How business exploits technology solutions for competitive advantage.
CTK2	The value of technology investments and how to formulate a business case for a new technology solution, including estimation of both costs and benefits.
CTK3	Contemporary techniques for design, developing, testing, correcting, deploying and documenting software systems from specifications, using agreed standards and tools.
CTK4	How teams work effectively to produce technology solutions.
CTK5	The role of data management systems in managing organisational data and information.
CTK6	Common vulnerabilities in computer networks including unsecure coding and unprotected networks.
CTK7	The various roles, functions and activities related to technology solutions within an organisation.
CTK8	How strategic decisions are made concerning acquiring technology solutions resources and capabilities including the ability to evaluate the different sourcing options.
CTK9	How to deliver a technology solutions project accurately consistent with business needs.
CTK10	The issues of quality, cost and time for projects, including contractual obligations and resource constraints.

Data Analytics Knowledge (DAK)

A Data Analyst knows and understands:

DAK1 | The quality issues that can arise with data and how to avoid and/or resolve these.

DAK2 | The processes involved in carrying out data analysis projects.

DAK3 | How to use and apply industry standard tools and methods for data analysis.

DAK4 | The range of data protection and legal issues.

DAK5 | The fundamentals of data structures, database system design, implementation and maintenance.

DAK6 | The organisation's data architecture.

Core Skills (CSK)

CSK1

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.

CSK2

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.

CSK3

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.

CSK4

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).

CSK5

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.

CSK6

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.

CSK7

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.

Data Analytics Skills (DASK)

A Data Analyst is able to:

DASK1	Import, cleanse, transform, and validate data with the purpose of understanding or making conclusions from the data for business decision making purposes.
DASK2	Present data visualisation using charts, graphs, tables, and more sophisticated visualisation tools.
DASK3	Perform routine statistical analyses and ad-hoc queries.
DASK4	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.
DASK5	Report on conclusions gained from analysing data using a range of statistical software tools.
DASK6	Summarise and present results to a range of stakeholders making recommendations.

Core Behaviour Skills (CB)

Professional, interpersonal and business skills:

CB1	Fluent in written communications and able to articulate complex issues.
CB2	Makes concise, engaging and well-structured verbal presentations, arguments and explanations.
CB3	Able to deal with different, competing interests within and outside the organisation with excellent negotiation skills..
CB4	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.
CB5	Competent in active listening and in leading, influencing and persuading others.
CB6	Able to give and receive feedback constructively and incorporate it into his/her own development and life-long learning.
CB7	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.
CB8	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.
CB9	Able to conduct effective research, using literature and other media, into IT and business related topics.

Core Behaviour Skills (CB)

Attributes and Behaviours:

CB10	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.

CB11	Flexible attitude.

CB12	Ability to perform under pressure.

CB13	A thorough approach to work.

CB14	Logical thinking and creative approach to problem solving.

Year 1

Introduction to Web Development

CTK3 · CSK2

Introduction to Business Systems

CTK1 · CTK2 · CTK5
CTK7 · CTK8 · CSK1
CSK2 · CSK3 · CSK5
CB1 · CB2 · CB3
CB4 · CB8

Introduction to Programming

CTK3 · CSK2 · CB7

Year 2

Computing Fundamentals

CTK3 · CTK6 · DAK6
CSK1 · CSK3 · CSK4
CSK7 · CB7

Technology Management

CTK1 · CTK3 · CTK7
CTK8 · CTK9 · CB3
CB4 · CB5

Statistics & Visualisation

DAK1 · DAK2 · DAK3
DASK2 · DASK3 · DASK4
DASK5 · DASK6

Year 3

Advanced Databases

CTK5 · DAK3 · DAK5
DAK6 · CSK3 · DASK1
DASK3

Data Analytics Project

CTK1 · CTK3 · CTK5
CTK8 · CTK9 · CTK10
DAK2 · DAK4 · DAK6
CSK3 · CSK5 · CSK6
DASK1 · DASK2 · DASK3
DASK4 · DASK5 · DASK6
CB1 · CB2 · CB3
CB5 · CB7 · CB8
CB9

Data Analytics

CTK5 · DAK1 · DAK2
DAK3 · DAK4 · DAK6
CSK3 · CSK5 · DASK1
DASK5 · DASK6 · CB9

Year 4

Elective Unit

Mapping for Elective Unit varies each year depending on units offered

Portfolio Unit

CB1 · CB2 · CB3
CB4 · CB5 · CB6
CB7 · CB8 · CB9
CB10 · CB11 · CB12
CB13 · CB14

Synoptic Project

CTK1 · CTK3 · CTK4
CTK6 · CTK9 · DAK4
CSK2 · CSK6 · DASK1
DASK2 · DASK3 · DASK4
DASK5 · DASK6 · CB1
CB2 · CB3 · CB4
CB5 · CB6 · CB7
CB8 · CB9 · CB10
CB13 · CB14