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| This document provides an index of the EPA portfolio evidence. You will note that modules are also listed against the relevant KSB they link to as per DTS Mapping document (on Moodle Course Tour).  Apprentices you are required to,   * remove any modules from the index that you have not completed * complete the sections of the index that apply to you (all core KSBs and specialist KSBs as per your apprenticeship/degree pathway) all specialisms are contained in this master document * Upload this document **once and only** when it is fully completed to OneFile so that it can be downloaded with your business case studies as part of your ‘Project Showcase’. This completed document will be used by your EPA panel to locate evidence. When you upload this index you will also state the time you have spent compiling this document, therefore keep a record of this information. * **Please note the red coding of the KSBs in the documents below. This matches the coding of KSBs on Onefile and therefore is there to assist you when you upload your Business Case Studies to OneFile.** | | | | |
| **Student Name** | | | | |
| **Student University Number** | | | | |
| **DTS Specialism** | | | | |
| **DTS Core Knowledge, Skills and Behaviours** | | | | |
|  | Core Skills | Modules | Eportfolio | |
|  |  |  | **Final Year WBP** | **Business Case Study number.** |
| CS.1 | Information Systems: 1.1 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. | Information Systems for Business Processes |  | Yes |
| CS.2 | Systems Development: 2.1 analyses business and technical requirements to select and specify appropriate technology solutions. 2.2 Designs, implements, tests, and debugs software to meet requirements using contemporary methods including agile development. 2.3Manages the development and assurance of software artefacts applying secure development practises to ensure system resilience. 2.4 Configures and deploys solutions to end users. | Smart Solutions Development- I( Programming)  Smart Solutions Development- II( Databases)  Internet of things  User Experience & Applications Development | Yes | Yes |
| CS.3 | Data: 3.1 identifies organisational information requirements and can model data solutions using conceptual data modelling techniques. 3.2 Is able to implement a database solution using an industry standard database management system (DBMS). 3.3 Can perform database administration tasks and is cognisant of the key concepts of data quality and data security. 3.4 Is able to manage data effectively and undertake data analysis. | Smart Solutions Development- II( Databases) |  | Module only / maybe a little |
| CS.4 | Cyber Security: 4.1 can undertake a security risk assessment for a simple IT system and propose resolution advice. 4.2 Can identify, analyse and evaluate security threats and hazards to planned and installed information systems or services (e.g. Cloud services). | Cyber Risks in Organisations |  | Module only |
| CS.5 | Business Organisation: 5.1 can apply organisational theory, change management, marketing, strategic practice, human resource management and IT service management to technology solutions development. 5.2 Develops well- reasoned investment proposals and provides business insights. | Information Business Management Operations | Yes |  |
| CS.6 | IT Project Management: 6.1 follows a systematic methodology for initiating, planning, executing, controlling, and closing technology solutions projects. 6.2 Applies industry standard processes, methods, techniques and tools to execute projects. 6.3 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. | Smart Solutions Development- II( Databases)  Agile Project Management  Work Based Project | Yes | Yes |
| CS.7 | Computer and Network Infrastructure: 7.1 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. 7.2 Identifies network security risks and their resolution. | Network Protocols & Infrastructure  Software Development Life Cycle  Network routing and switching technologies |  | Module only |
|  | **Core Technical Knowledge** | **Modules** | **Eportfolio** | |
|  |  |  | **Final Year WBP** | **Business Case Study number.** |
| Knows and understands: | | | | |
| CT.1 | 1.1 How business exploits technology solutions for competitive advantage. | Information Systems for Business Processes | Yes | Yes |
| CT.2 | 1.2 The value of technology investments and how to formulate a business case for a new technology solution, including estimation of both costs and benefits. | Information Business Management Operations | Yes | Yes |
| CT.3 | 1.3 Contemporary techniques for design, developing, testing, correcting, deploying and documenting software systems from specifications, using agreed standards and tools. |  | Yes | Yes |
| CT.4 | 1.4 How teams work effectively to produce technology solutions. | Network Protocols & Infrastructure  Agile Project Management  Internet of things  Network routing and switching technologies | Yes | Yes |
| CT.5 | 1.5 The role of data management systems in managing organisational data and information. | Smart Solutions Development- II( Databases) |  | Yes |
| CT.6 | 1.6 Common vulnerabilities in computer networks including unsecure coding and unprotected networks. | Cyber Risks in Organisations |  | Module only |
| CT.7 | 1.7 The various roles, functions and activities related to technology solutions within an organisation. | Applied Maths- I  Information Systems for Business Processes  Cyber Risks in Organisations |  | Yes |
| CT.8 | 1.8 How strategic decisions are made concerning acquiring technology solutions resources and capabilities including the ability to evaluate the different sourcing options. | Information Business Management operations |  | Module only |
| CT.9 | 1.9 How to deliver a technology solutions project accurately consistent with business needs. | Agile Project Management  Internet of things  Work Based Project | Yes | Yes |
| CT.10 | 1.10 The issues of quality, cost and time for projects, including contractual obligations and resource constraints. | Agile Project management  User Experience & Applications Development  Work Based Project | Yes |  |
|  | **Core Behavioural Skills** | **Modules** | **Eportfolio** | |
|  |  |  | **Final Year WBP** | **Business Case Study number.** |
| CB.1 | 1.1 Fluent in written communications and able to articulate complex issues. | Cyber Risks in Organisations  Network Security  Work Based Project | Yes | Yes |
| CB.2 | 1.2 Makes concise, engaging and well-structured verbal presentations, arguments and explanations. | Personal and Professional Skills  Network Security  Work Based Project | Yes | Yes |
| CB.3 | 1.3 Able to deal with different, competing interests within and outside the organisation with excellent negotiation skills. | Work Based Project | Yes | Yes |
| CB.4 | 1.4 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. | Personal and Professional Skills  Agile Project Management |  | Yes |
| CB.5 | 1.5 Competent in active listening and in leading, influencing and persuading others. | Personal and Professional Skills  Agile Project Management |  | Yes |
| CB.6 | 1.6 Able to give and receive feedback constructively and incorporate it into his/her own development and life-long learning. | Personal and Professional Skills  Network Security |  | Yes |
| CB.7 | 1.7 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. | Smart Solutions Development- II( Databases)  Information Systems for Business Processes  Applied Maths- II  Machine Intelligence | Yes | Yes |
| CB.8 | 1.8 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. | Information Business Management Operations  Information Systems for Business Processes  Applied Maths- II  Agile Project Management  Work Based Project | Yes | Yes |
| CB.9 | 1.9 Able to conduct effective research, using literature and other media, into IT and business related topics. | Information Business Management Operations  Cyber Risks in Organisations  Machine Intelligence  Network Security  Work Based Project | Yes | Yes |
| CB.10 | 2.1 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. | Cyber Risks in Organisations  Applied Maths- II  Agile Project Management  Network Security  Work Based Project | Yes | Yes |
| CB.11 | 2.2 Flexible attitude. | Applied Maths- I  Cyber Risks in Organisations  Machine Intelligence  Internet of things  Network Security | Yes | Yes |
| CB.12 | 2.3 Ability to perform under pressure. | Applied Maths- I  Cyber Risks in Organisations  Agile Project Management  Network Security | Yes | Yes |
| CB.13 | 2.4 A thorough approach to work. | Personal and Professional Skills  Cyber Risks in Organisations  Agile Project Management  Network Security  Work Based Project | Yes | Yes |
| CB.14 | 2.5 Logical thinking and creative approach to problem solving | Applied Maths- I  Cyber Risks in Organisations  Machine Intelligence  Network Security  Work Based Project | Yes | Yes |
| **Software Engineering Specialism** | | | | |
|  | **Software Engineering**  **Skills** | **Modules** | **Eportfolio** | |
|  |  |  | **Final Year WBP** | **Business Case Study number.** |
| SS.1 | 1.1a Create effective and secure software solutions using contemporary software development languages to deliver the full range of functional and non-Functional requirements using relevant methodologies | Smart Solutions Development- I( Programming)  Network Protocols & Infrastructure  Software Development Life Cycle  Industrial Vision & Processing  Work Based Project | Yes | Yes |
| SS.2 | 1.1b Undertake analysis and design to create artefacts, such as use cases to produce robust software designs. | Software Development Life Cycle  Real time Operating Systems  Automotive Control Systems  Work Based Project | Yes | Yes |
| SS.3 | 1.1c Produce high quality code with sound syntax in at least one language following best practices and standards. | Smart Solutions Development- I( Programming)  Network Protocols & Infrastructure  Machine Intelligence  Industrial Vision & Processing  Work Based Project | Yes | Yes |
| SS.4 | 1.1d Perform code reviews, debugging and refactoring to improve code quality and efficiency. | Smart Solutions Development- I( Programming)  Network Protocols & Infrastructure  Machine Intelligence  Internet of things  Software Development Life Cycle  Industrial Vision & Processing  Automotive Control Systems  Work Based Project | Yes | Yes |
| SS.5 | 1.1e Test code to ensure that the functional and non-functional requirements have been met. | Smart Solutions Development- I( Programming)  Network Protocols & Infrastructure  Internet of things  Software Development Life Cycle  Automotive Control Systems  Work Based Project | Yes | Yes |
| SS.6 | 1.1f Deliver software solutions using industry standard build processes, and tools for configuration management, version control and software build, release and deployment into enterprise environments. | Software Development Life Cycle  Work Based Project | Yes | Yes |
|  | **Software Engineering**  **Technical Knowledge** | **Modules** | **Eportfolio** | |
|  |  |  | **Final Year WBP** | **Business Case Study number.** |
| Knows and understands | | | | |
| ST.1 | 2.1a How to operate at all stages of the software development lifecycle. | Software Development Life Cycle  Work Based Project | Yes | Yes |
| ST.2 | 2.1b How teams work effectively to develop software solutions embracing agile and other development approaches. | Work Based Project | Yes | Yes |
| ST.3 | 2.1c How to apply software analysis and design approaches. | Network Protocols & Infrastructure  Automotive Control Systems  Work Based Project | Yes | Yes |
| ST.4 | 2.1d How to interpret and implement a design, compliant with functional, non-functional and security requirements. | Software Development Life Cycle  Real time Operating Systems  Work Based Project | Yes | Yes |
| ST.5 | 2.1e How to perform functional and unit testing. | Software Development Life Cycle  Work Based Project | Yes | Yes |
| ST.6 | 2.1f How to use and apply the range of software tools used in Software engineering. | Smart Solutions Development- I( Programming)  Network Protocols &Infrastructure  Software Development Life Cycle  Industrial Vision & Processing  Automotive Control Systems  Work Based Project | Yes | Yes |
| **Data Analytics Specialism** | | | | |
|  | **Data Analytics**  **Skills** | **Modules** | **Eportfolio** | |
|  |  |  | **Final Year WBP** | **Business Case Study number.** |
| Be able to: | | | | |
| DS.1 | 1.1a Import, cleanse, transform, and validate data with the purpose of understanding or making conclusions from the data for business decision making purposes. | Data Science and Machine Learning  Business Analytics & Visualization  User Experience & Applications Development  Work Based Project |  |  |
| DS.2 | 1.1b Present data visualisation using charts, graphs, tables, and more sophisticated visualisation tools. | Data Science and Machine Learning  Business Analytics & Visualization  User Experience & Applications Development  Work Based Project |  |  |
| DS.3 | 1.1c Perform routine statistical analyses and ad-hoc queries. | Data Science and Machine Learning  Work Based Project |  |  |
| DS.4 | 1.1d 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. | Data Science and Machine Learning  Business Analytics & Visualization  User Experience & Applications Development  Work Based Project |  |  |
| DS.5 | 1.1e Report on conclusions gained from analysing data using a range of statistical software tools. | Data Science and Machine Learning  Business Analytics & Visualization  User Experience & Applications Development  Work Based Project |  |  |
| DS.7 | 1.1f Summarise and present results to a range of stakeholders making recommendations. | Data Science and Machine Learning  Work Based Project |  |  |
|  | **Data Analytics**  **Technical Knowledge** | **Modules** | **Eportfolio** | |
|  |  |  | **Final Year WBP** | **Business Case Study number.** |
| Knows and understands: | | | | |
| DT.1 | 2.1a The quality issues that can arise with data and how to avoid and/or resolve these. | Data Science and Machine Learning  Business Analytics & Visualization  User Experience & Applications Development  Work Based Project |  |  |
| DT.2 | 2.1b The processes involved in carrying out data analysis projects. | Data Science and Machine Learning  Business Analytics & Visualization  User Experience & Applications Development  Work Based Project |  |  |
| DT.3 | 2.1c How to use and apply industry standard tools and methods for data analysis. | Data Science and Machine Learning  Business Analytics & Visualization  User Experience & Applications Development  Work Based Project |  |  |
| DT.4 | 2.1d The range of data protection and legal issues. | Work Based Project |  |  |
| DT.5 | 2.1e The fundamentals of data structures, database system design, implementation and maintenance. | Work Based Project |  |  |
| DT.6 | 2.1f The organisation's data architecture. | Work Based Project |  |  |
| **Network Engineering Specialism** | | | | |
|  | **Network Engineering**  **Skills** | **Modules** | **Eportfolio** | |
|  |  |  | **Final Year WBP** | **Business Case Study number.** |
| Be able to: | | | | |
| NS.1 | 1.1a Plan, design, build and test a simple network to a requirement specification that includes hubs, switches, routers and wireless user devices, applying appropriate security products and processes. | Network Protocols & Infrastructure  Cyber Risks in Organisations  Internet of things  Network Security  Work Based Project |  |  |
| NS.2 | 1.1b Identify the key characteristics of a new network service and develop estimates of the expected traffic intensity and traffic load that the network must support. | Network routing and switching technologies  Distributed network architectures  Work Based Project |  |  |
| NS.3 | 1.1c Determine the minimum network capacity of planned networks to meet network requirements. | Network Protocols & Infrastructure  Network routing and switching technologies  Distributed network architectures  Work Based Project |  |  |
| NS.4 | 1.1d Design, build, test, configure and optimise a distributed network (more than 1 sub- net), including switches, routers and firewalls to meet given requirements. | Cyber Risks in Organisations  Network routing and switching technologies  Work Based Project |  |  |
| NS.5 | 1.1e Analyse network performance and troubleshoot typical problems in networks. | Network Security  Work Based Project |  |  |
| NS.6 | 1.1f Identify and evaluate network security risks and incorporate appropriate security products and processes into network designs to increase security, resilience and dependability. | Internet of things  Network Security  Work Based Project |  |  |
|  | **Network Engineering**  **Technical Knowledge** | **Modules** | **Eportfolio** | |
|  |  |  | **Final Year WBP** | **Business Case Study number.** |
| Knows and understands: | | | | |
| NT.1 | 2.1a The  fundamental    building   blocks   (e.g.   routers, switches, hubs, storage, transmission) and typical architectures (e.g. server/client, hub/spoke) of computers, networks and the Internet. | Network Protocols & Infrastructure  Cyber Risks in Organisations  Automotive communication Networks  Work Based Project |  |  |
| NT.2 | 2.1b The main  features  of  routing  and  Internet  network protocols in use, their purpose and relationship to each other, including the physical and data link layer  (e.g. https, HTTP, SMTP, SNMP, TCP, IP, etc.). | Network Protocols & Infrastructure  Cyber Risks in Organisations  Network routing and switching technologies  Distributed network architectures  Work Based Project |  |  |
| NT.3 | 2.1c The main factors that affect network performance (e.g. the relationship between bandwidth, number of users, nature of traffic, contention). | Cyber Risks in Organisations  Network routing and switching technologies  Distributed network architectures  Automotive communication Networks  Work Based Project |  |  |
| NT.4 | 2.1d Failure modes in protocols (e.g. why a protocol may ‘hang’ and the effect of data communication errors). | Network routing and switching technologies  Distributed network architectures  Work Based Project |  |  |
| NT.5 | 2.1e The ways to improve performance (e.g. application of traffic shaping, changes to architecture to avoid bottlenecks, network policy that prohibit streaming protocols). | Cyber Risks in Organisations  Network routing and switching technologies  Distributed network architectures  Network Security  Work Based Project |  |  |
| NT.6 | 2.1f The issues that may arise in the day to day operation of networks and how to resolve them. | Cyber Risks in Organisations  Network routing and switching technologies  Distributed network architectures  Work Based Project |  |  |