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| **Module code: IOT450W**  Credits: 30.0 Semester: SEM3  Contact: Dr Eranjan Padumadasa  The Introduction to Reflective Practice module is designed to equip digital apprentices with the skills and mindset necessary to engage in reflective thinking and continuous improvement throughout their apprenticeship journey. By integrating the core behaviors expected of digital apprentices, this module aims to foster self-awareness, critical thinking, and professional development.  KSBs covered by the modules depend on how the learners engage with the KSBs at the workplace, however the module will engage with all the behaviours B1 - B7  Topics to be covered include; -Understanding Reflective Practice -Reflective Tools and Techniques -Reflective Portfolio Development and Learning Logs -Applying Reflective Practice in wok in digital world -Ethical Reflection and Decision Making -Collaborative Reflection and Knowledge Sharing -Reflective Leadership and Diversity -Reflective Practice and Lifelong Learning Connected course(s): UDF DATA Assessment: 60.0% Coursework, 40.0% Practical Level: 4 |
| **Module code: IOT451U**  Credits: 30.0 Semester: SEM1  Contact: Dr Alexander Cline  This module will provide introductions to key areas of the knowledge, skills, and behaviors that are common to all specialisms in the Digital and Technology Solutions Professional programme. The first part of the module introduces structured object oriented programming at a practical level, using the python language, which will underpin many further studies in each specialism. The second part of the module includes brief assignments on data analysis, legal and ethical concerns, and presentations to stakeholders. Connected course(s): UDF DATA Assessment: 100.0% Coursework Level: 4 |
| **Module code: IOT452U**  Credits: 30.0 Semester: SEM2  Contact: Dr Alim Gias  The Software Engineering Tools, Techniques and Practices module is designed to provide students with an in-depth understanding of the tools, methodologies, and best practices employed in modern software engineering. Building upon foundational concepts in development, this module explores topics in software engineering and development focusing on industry-standard tools and techniques used in professional software engineering environments. Students will gain practical experience through hands-on exercises, collaborative projects, and case studies, preparing them to tackle complex software engineering challenges in real-world settings..  KSB's specific to the requirements of Software Engineering pathway - K21,K22,K24,K26,S17,S19,S20,S21,S22  Topics covered -Introduction to Software Development Life Cycle (SDLC) -Development Techniques and Methods -Software Development Methods and Approaches -Design and Implementation -Software Engineering Tools -Effective Teamwork and Collaboration -Creating Development Environments -Reflection and Critical Appraisal Connected course(s): UDF DATA Assessment: 90.0% Coursework, 10.0% Practical Level: 4 |
| **Module code: IOT453U**  Credits: 30.0 Semester: YEAR  Contact: Mrs Rachel Appleton  A Business Analyst (BA) is the interpreter between the technology development in the organisation and the business needs. A BA will play a crucial part in the identification of organisational requirements and solutions, driven by analysis. This identification and analysis is enabled by a knowledge of quality development theory, frameworks, tools, strategies and experience in their application. This module will provide an in depth overview of the role of a BA to ensure quality is achieved in all aspects of a product or project. It will provide the apprentice with access to topics and industry based application, that will support their roles in the workplace.  An IT Consultant (ITC) is the intermediary between technology, development teams and the customer or client. An ITC will play a lead role in the identification of problem causes and their solutions and will provide advice to customers and clients as to the best quality solution for their individual organisational requirements. This identification is driven by a knowledge of quality development theory, frameworks, tools, strategies and experience in their application. This module will provide an in depth overview of the role of an ITC to ensure quality is achieved in all aspects of a product and project. It will provide the apprentice with access to topics and industry focused application, that will support their roles in the workplace.  Data analysts (DA) are highly skilled professionals who collect, organise and study data. Day to day, they are typically involved with managing, cleansing, abstracting and aggregating data across the network infrastructure. They report their findings and make recommendations that are key to improving business performance.  Software engineers (SE) design, build and test high-quality software solutions, whilst always ensuring security is robust. They typically work as part of a collaborative team.  The module will cover key quality aspects throughout the project development life cycle from design through to deployment and maintenance, with an emphasis on quality, industry standards, and professional issues.  Core skills based coverage addressing S3, S6, S7, S8, S13, S14, S50, S51.  This module is compulsory on the DTS DA BA pathway and addresses specialist knowledge for this pathway, including a tailored curriculum to address K38, K40, K41, K42, S32, S35, S36. This module is compulsory on the DTS ITC pathway and addresses specialist knowledge for this pathway, including a tailored curriculum to address K30, K31, K32, K33, K44, S24, S26, S28, S31. This module is compulsory on the DTS DA SE pathway and addresses specialist knowledge for this pathway, including a tailored curriculum to address K21, K25, K28, S17, S22, S23. This module is compulsory on the DTS DA DA pathway and addresses specialist knowledge for this pathway, including a tailored curriculum to address K53, K59, S49.  Topics covered include: Introduction to Quality Assurance Introduction to Leadership in Quality Development Introduction to Project Management Quality focused Requirements and Data Capture Quality in Development Quality Management Systems Quality Focused Testing Change Management and Success Quality Metrics and Measurement Industry Standards, regulations and compliance Connected course(s): UDF DATA Assessment: 50.0% Coursework, 30.0% Practical, 20.0% Professional Capability Level: 4 |
| **Module code: IOT552U**  Credits: 30.0 Semester: YEAR  Contact: Mrs Rachel Appleton  A Business Analyst (BA) is the interpreter between the technology development in the organisation and the business needs. A BA will play a crucial part in the identification of organisational requirements and solutions, driven by analysis. This identification and analysis is enabled by a knowledge of the internal and external business environment and their influence on decision making. This module will provide an in depth overview of the role of a BA to ensure reliable decisions are achieved in all aspects of a product or project within the organisation. It will provide the apprentice with access to topics and industry based application, that will support their roles in the workplace.  An IT Consultant (ITC) is the intermediary between technology, development teams and the customer or client. An ITC will play a lead role in the identification of problem causes and their solutions and will provide advice to customers and clients as to the best quality solution for their individual organisational requirements. This identification and analysis is enabled by a knowledge of the internal and external business environment and their influence on decision making. This module will provide an in depth overview of the role of an ITC to ensure reliable decisions are achieved in all aspects of a product or project within the organisation. It will provide the apprentice with access to topics and industry based application, that will support their roles in the workplace.  Data analysts (DA) are highly skilled professionals who collect, organise and study data. Day to day, they are typically involved with managing, cleansing, abstracting and aggregating data across the network infrastructure. They report their findings and make recommendations that are key to improving business performance. This module will provide an in depth overview of the role of a DA to ensure reliable decisions are achieved in all aspects of a product or project within the organisation. It will provide the apprentice with access to topics and industry based application, that will support their roles in the workplace.  Software engineers (SE) design, build and test high-quality software solutions, whilst always ensuring security is robust. They typically work as part of a collaborative team. This module will provide an in depth overview of the role of a SE to ensure reliable decisions are achieved in all aspects of a product or project within the organisation. It will provide the apprentice with access to topics and industry based application, that will support their roles in the workplace.  The module will cover key topics to provide the apprentices with an understanding of the business environment, addressing and understanding the influence of internal, micro and macro factors that affect the success of an organisation and any decisions that need to be made to ensure continuing success. The module will provide the apprentices with a more comprehensive understanding of the organisation as a whole and the role of the BA, ITC, DA or SE within it.  Core knowledge based coverage addressing: K1, K2, K3, K4, K7, K8, K9, K10 K17 Core skills based coverage addressing: S1, S2, S3, S8, S13,  Topics covered include: Introduction to the Business Environment Organisational Environment and Strategic Fit External Environment Competitive environment Micro environment Strategic planning and management Aspects of decision-making Connected course(s): UDF DATA Assessment: 50.0% Coursework, 30.0% Practical, 20.0% Professional Capability Level: 5 |
| **Module code: IOT555U**  Credits: 30.0 Semester: SEM1  Contact: Dr Seth Zenz  This module will cover advanced topics in key areas of the knowledge, skills, and behaviors that are common to all specialisms in the Digital and Technology Solutions Professional programme. Topics covered are Research and Evaluation, Data Collection, Legal and Ethical issues including diversity and green computing, computer networks, and secure practices. Key factors for critically evaluating how to apply techniques in each area to digital technology solutions will be emphasised. Connected course(s): UDF DATA Assessment: 85.0% Coursework, 15.0% Examination Level: 5 |
| **Module code: IOT554U**  Credits: 30.0 Semester: SEM2  Contact: Mrs Rachel Appleton  his module explores the principles and application of various software development methods and approaches, emphasizing their contexts and suitability. It also explores the factors influencing product quality throughout the development life cycle and strategies for quality control. Additionally, the module examines approaches to interpret and utilize artefacts effectively in software development. Furthermore, it equips students with the skills to extend and update their software development knowledge by integrating evidence from professional and academic sources to inform best practices and drive organizational improvements  Topics to be Covered:  -Introduction to software development methods and approaches -Agile methodologies (e.g., Scrum, Extreme Programming) -Waterfall methodology and its variants -Hybrid methodologies -Contextual analysis of software development approaches -Factors influencing product quality in software development -Quality assurance techniques and strategies -Software artefacts: types, interpretation, and utilization Connected course(s): UDF DATA Assessment: 90.0% Coursework, 10.0% Practical Level: 5 |
| **Module code: IOT591U**  Credits: 30.0 Semester: YEAR  Contact: Mrs Rachel Appleton  This module will help you to develop your reflective practice skills and prepare you for your final year synoptic project. You will learn how to use reflective practice to explore your learning and development, identify areas for improvement, and set and achieve goals. You will also learn the basics of planning a research project and research methods.  This module is essential for students who want to be successful in their careers as technology professionals. It will help you to develop the skills and knowledge you need to learn from your experiences, stay up-to-date with the latest technologies and trends, and manage complex projects effectively. Connected course(s): UDF DATA Assessment: 100.0% Coursework Level: 5 |
| **Module code: IOT607U**  Credits: 15.0 Semester: SEM1  Contact: Dr Dimitrios Kollias  Data that has relevance for decision-making is accumulating at an incredible rate due to a host of technological advances. Electronic data capture has become inexpensive and ubiquitous as a by-product of innovations such as the Internet, e-commerce, electronic banking, point-of-sale devices, bar-code readers, and electronic patient records. Data mining is a rapidly growing field that is concerned with developing techniques to assist decision-makers to make intelligent use of these repositories. The field of data mining has evolved from the disciplines of statistics and artificial intelligence.  This course will combine practical exploration of data mining techniques with a exploration of algorithms, including their limitations. Students taking this module should have an elementary understanding of probability concepts and some experience of programming. Connected course(s): UDF DATA Assessment: 60.0% Examination, 40.0% Coursework Level: 6 |
| **Module code: IOT653U**  Credits: 30.0 Semester: YEAR  Contact: Dr Eranjan Padumadasa  This module provides learners with an advanced understanding of project, program, and product management principles and practices. Students will explore the theoretical foundations and practical applications of project, program, and product management methodologies, tools, and techniques. Through case studies, interactive discussions, and hands-on projects, and most importantly master classes with industry speakers learners will develop the knowledge, skills, and behaviors required to lead and manage complex initiatives effectively in various organizational contexts. Connected course(s): UDF DATA Assessment: 90.0% Coursework, 10.0% Practical Level: 6 |
| **Module code: DAT5501**  Credits: 30.0 Semester: SEM1  Contact: Dr Seth Zenz  This module provides a wide range of appropriate data analysis techniques focusing on building from unstructured data to models that allow patterns to be understood and acted upon organisationally. This includes implementing and validating models of relationships between data, testing correlation vs causation, feature selection and introductory applications of machine learning techniques. The module also includes professional software development techniques (e.g. distributed version control, unit testing, continuous integration), key software for data professionals, project management, CV-writing, job interview skills, communication, effective presentation and report writing with students working collaboratively to draw conclusions and extract useful information from available datasets. They will gain the invaluable skills on how to interpret and report their analysis and results in ways that are informative and appropriate to varied audiences including internal and external stakeholders for informed decision-making purposes. This module is taught through a combination of lectures on theoretical background, writing and presentation workshops, and computer lab-based group work, where students will complete investigative projects on example real-world problems. Connected course(s): UDF DATA Assessment: 75.0% Coursework, 25.0% Examination Level: 5 |