**ARDEN UNIVERSITY QUALITY ASSURANCE DOCUMENT QA3 - PROGRAMME SPECIFICATION**

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| **1. Target Award** | MSc |
| **2. Programme Title** | **MSc Data Analytics and Enterprise Architecture Management**<br>**PGDip Data Analytics and Enterprise Architecture Management** |
| **3. Exit Awards** | PGDip Data Analytics and Architecture Management<br>PGCert Data Analytics and Enterprise Architecture Management<br>PGCert Data Analytics<br>PGCert Enterprise Architecture Management |
| **4. Programme Leader(s)** | Benjamin Silverstone |
| **5. Delivery Model** | Online<br>Blended learning delivery by Arden University staff and supported via the VLE. |
| **6. Start date** | October 2017 |
| **7. Programme Accredited by** *(PSRB or other, if applicable)* | |
| **8. UCAS Code** *(If applicable)* | |
| **9. Relevant QAA subject benchmark statement** | QAA General Master's Degrees (2015), QAA Master's Degrees in Computing (2011) |

**10. Programme Aims**

The aim of the MSc in Data Analytics and Enterprise Architecture Management is to provide students with core skills and competencies in the area of applied data analytics that they can apply within an enterprise architecture management environment. The purpose of the programme is enable students to effectively analyse their data needs and to identify and design appropriate methods of gathering data to meet those needs. Students will gain a critical understanding of data handling, using a variety of tools, and how the outcomes of analysis can inform decision making. Finally, students will develop a critical appreciation of the need to effectively communicate the outcomes of analysis via visual methods. The programme will also equip students with higher level skills related to managing the business change required to successfully integrate architecture development which support development. Students will also be equipped with skills to evaluate the changing technological environment and integrate emerging technologies.

Online teaching materials are derived from established academic research in order to develop critical powers of analysis, reflection and the further development of interpersonal skills in preparation for management roles.

Programme participants will build on their previous understanding of data analytics and enterprise architecture management and will have the opportunity to develop new skills which they will be expected to apply within their own working contexts. This is achieved through critical thinking, creativity and personal development.

In particular, based upon the established tasks and responsibilities associated with graduates, the purpose of the programme is to enable students to demonstrate the following:

- An ability to critically analyse the need for data gathering for a specific purpose.
- A critical approach to identifying sources of data and designing tools to address specific needs in data gathering
- Well-developed skills in the use of data analytics tools to analyse datasets based upon a stated need
- An ability to evaluate the outcome of analytics activities and make recommendations
- Critically appreciate the role of data visualisation and apply the methods to communicate the outcomes of analytics activities.
- A critical understanding of the implementation an ethical approach to data gathering, analysis and management.

- Development of a critical approach to developing architecture solutions to meet business needs
- Evaluate the changing trends in technology and develop skills to maintain currency
- An ability to critically assess business change and apply effective skills to manage it

**Arden Values Mapping**: the table below identifies how programme outcomes (listed within section 11) meet provide for full coverage of Arden University Values.

| | Knowledge & Understanding | Intellectual Thinking | Practical Skills | Transferable Skills |
|---|---|---|---|---|
| We Support People | | B1 | | D3, D5 |
| We Do the Right Thing | A1 | B2 | | |
| We Innovate | A7 | | C3, C5 | |
| We Take Ownership | A2, A3 | B3 | | D2 |

| 11. Intended programme learning outcomes and the means by which they are achieved and demonstrated | | |
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| **MSc (180 credits)** | | |
| **11a. Knowledge and understanding** | **The means by which these outcomes are achieved** | **The means by which these outcomes are demonstrated** |
| A1 – Critically analyse tools for data gathering and develop innovative and ethical methods of addressing data needs.<br><br>A2 – Evaluate the role of data handling and decision making within specific contexts<br><br>A3 – Analyse the need for effective communication of data analytics outcomes with a focus on communicating with non-specialists.<br><br>A4 – Evaluate the need for enterprise architectural design and demonstrate innovative solutions in the meeting of workplace enterprise architectural needs.<br><br>A5 – Critically understand the evolution of technological trends and evaluate opportunities for adoption of emerging technologies in IT practice<br><br>A6 – Evaluate the need for and impact of technology led organisational change and the ethical dilemmas posed during the process.<br><br>A7 – Undertake self-led research into computing issues in the workplace demonstrating an ethical approach to the application of research principles | Learning and Teaching methods and strategy:<br>Acquisition of knowledge and understanding (A1 – A7) is through an integrated learning and teaching pedagogy that includes both asynchronous and synchronous activity. That is:<br>Asynchronous<br>Independent and directed student study, supported throughout by comprehensive online multi-media teaching materials and resources accesses through our VLE<br>Guided group / project based work<br>Discussion forums where students discuss and critically engage with themes emerging from the materials they engage with, following the posing of questions or propositions, case studies or similar by either tutor or students themselves<br>Podcasts and narrated PowerPoint's<br><br>Synchronous<br>Online seminars facilitated by VOIP's where theory and practice are integrated.<br>Live chats<br>Based upon the profile of our typical student body, our strategy enables students to engage with a variety of learning tools that best meet their learning styles, overall objectives and personal circumstances.<br>Independent study is the cornerstone of the learner experience supported by engagement with the specialist tutor and peer engagement. | Knowledge and understanding are assessed through in-module assessments of portfolio submissions, presentations, time-constrained examinations, and report based assignments.<br><br>Formative assessments are the precursor to the summative assessments. Appropriate and diverse formative assessments are provided for students and are communicated to them via a clear overview to be found in the assessment brief for each module. |

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| | There is a requirement for written work at all levels including reports, essays, practical tasks, developed targeted plans etc., and our formative assessment policy informs how feedback is supplied by tutors at the draft assessment phase.<br><br>Blended delivery is facilitated by a combination of synchronous face to face classroom based delivery and Asynchronous<br>Independent and directed student study, supported throughout by comprehensive online multi-media teaching materials and resources accessed through our VLE | |
| **11b. Intellectual (thinking) skills** | **The means by which these outcomes are achieved** | **The means by which these outcomes are demonstrated** |
| B1 – Individually and collaboratively analyse complex problems and requirements and systematically synthesise and evaluate a range of potential solutions.<br><br>B2 – Demonstrate systematic, ethical and creative approaches to data gathering, analysis and communication, showing initiative and originality.<br><br>B3 – Systematically collect and use data from specific sources to synthesise and evaluate effective data design, analytics and communication methods.<br><br>B4 – Apply innovative methodologies, techniques, tools and technologies to communicate the outcomes of data analysis based upon a complex problem | Intellectual skills (B1 – B5) are developed throughout the programme by the methods and strategies outlined in section A, above.<br>Specific modules support the development of quantitative and qualitative analysis, and the development of criticality and self-reflective skills. In addition, the student's thinking skills will be evident in a summative assessment process which requires and rewards learners for the demonstration of creative thinking and problem solving, analysis, judgement and self-reflection in the development of contextually relevant solutions, and a willingness to explore and engage with a range of media.<br>Throughout, the learner is encouraged to develop intellectual skills further by undertaking further independent study and research.<br><br>Students will be required to demonstrate skill development both individually and collaboratively through the collection of information, analysis and evaluation of findings and presentation of solutions. | Intellectual skills are assessed through a combination of in-course formative exercises and summative assignments, including the submission of portfolios, self-reflective evidence, statistical analyses, qualitative judgements, and research reports/research project. |

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| B5 – Utilise judgement to draw appropriate conclusions and make innovative recommendations. | | |
| **11c. Practical skills** | **The means by which these outcomes are achieved** | **The means by which these outcomes are demonstrated** |
| C1 – Effectively design data gathering techniques to meet a specific need<br><br>C2 – Demonstrate data audit and analysis skills using established tools and techniques<br><br>C3 – Effectively communicate the outcomes of analysis activities using established tools and techniques in a creative way in order to meet the needs of the target audience.<br><br>C4 – Articulate reasoned evidence to justify conclusions and recommendations.<br><br>C5 – Demonstrate flexibility in adapting to novel and complex contexts.<br><br>C6 – Apply a range of information systems techniques to address challenges in developing architecture strategy, maintaining currency and managing change | Practical and professional skills are employed in the production of solutions to real life situations developed through set briefs, exercises and practical activities. The important modern-day skills of gathering data, auditing and analysing datasets and communicating the outcomes to non-specialists are delivered within this programme through the completion of practical and analytical assessments which make thorough use of the student's own working context.<br>Practical skills are further developed and integrated through a series of in-course online activities and projects intended to test skills acquired. Group forums provide opportunities to discuss ideas, progress, the work of others and the strengths and weakness in the work presented and particularly support the development of C4. Activities are provided so that students can work independently to consolidate their knowledge and grasp of practical skills. | To support the development of practical skills students must supply worked materials and evidence in support of their assignments. Critical reasoning, good presentation and sound evidence trails in all assignments are rewarded. Assessment briefs include a variety of commercial and geographical contextual setting. Students receive feedback on all activities and assignments which includes practical examples for improvement in the application of theory to practice to help them improve both aspects of their skill base. |
| **11c. Transferrable skills** | **The means by which these outcomes are achieved** | **The means by which these outcomes are demonstrated** |
| D1 – Systematically and competently collate, synthesise and communicate complex information effectively | Personal responsibility becomes an increasingly important skill as students' progress, culminating in the writing of the Research project. | To develop transferable skills all assignments must meet time deadlines and word count guidelines. All assessed work must be submitted independently even where |

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| D2 – Demonstrate a reflective approach to work and the capacity to take responsibility for engaging in self-directed life-long learning for professional development.<br><br>D3 – Work autonomously and collaboratively demonstrating the highest professional and ethical standards<br><br>D4 – Manage time effectively by learning to plan and prioritise work in order to meet specified deadlines.<br><br>D5 – Learn independently and collaboratively in the spirit of critical and self-reflective enquiry. | As the programme progresses work becomes more complex and students are tested on their abilities to respond positively to feedback from a variety of audiences, as well as to manage increasingly large workloads. Students are required to complete a number of assignments and a 'research artefact' that rewards independence originality, and critical enquiry, and which further enhance communication and self-reflective skills. | group activity has been an element of the process. Students must take responsibility for their own work. All assignments require students to adopt a spirit of critical enquiry and self-reflection which is rewarded in marking guides. These guides are shared with students. |

**Exit Awards: Programme Outcome**

Due to the structure of the proposed programme there are a range of possible exit awards that are dependent upon the module mix achieved by the student. A single Postgraduate Diploma is available which recognises the completion of part 1 of the programme and therefore represents the Data Analytics and Enterprise Architecture Management route. If a student completes the three Data Analytics modules then they are able to exit with the Postgraduate Certificate in Data Analytics which is the same award as the target PGCert on offer. If a student completes the three Enterprise Architecture Management modules they are able to exit with a Postgraduate Certificate in Enterprise Architecture Management. If a student achieves a combination of Data Analytics and Enterprise Architecture Management modules they are able to exit with a Postgraduate Certificate in Data Analytics and Enterprise Architecture Management.

This approach will enable the student to exit with an award that recognises the elements of the whole programme that they have achieved. Due to the joint nature of the programme, with the "Data Core" cutting across the suite of programmes, it is necessary to closely delineate between what a student has achieved.

| Exit Award | Knowledge & Understanding | Intellectual Skills | Practical Skills | Transferrable Skills |
|---|---|---|---|---|
| **Post Graduate Diploma (120 credits)** | A1, A2, A3, A4, A5, A6 | B1, B2, B3, B4, B5 | C1, C2, C3, C4, C5, C6 | D1, D2, D3, D4, D5 |
| **Post Graduate Certificate (Data Analytics) (60 credits)** | A1, A2, A3 | B1, B2, B3, B4, B5 | C1, C2, C3 | D1, D2, D3, D4, D5 |
| **Post Graduate Certificate (Enterprise Architecture Management) (60 credits)** | A4, A5, A6 | B1, B5 | C4, C5, C6 | D2, D4, D5 |
| **Post Graduate Certificate (Data Analytics and Enterprise Architecture Management) (60 credits)** | A2, A4, A5 | B1, B3, B5 | C2, C4, C5, C6 | D1, D2, D3, D4, D5 |

| **12. Graduate Attributes and the means by which they are achieved and demonstrated** |
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| **Graduate Attributes** |
| The concept of the Arden University Graduate, based upon the definition of 'graduate attribute' by Bowden et al (2000) has been developed around 6 attributes.<br><br>**Lifelong Learning:** Manage employability, utilising the skills of personal development and planning in different contexts to contribute to society and the workplace. |

**Reflective Practitioner:** Undertake critical analysis and reach reasoned and evidenced decisions, contribute problem-solving skills to find and innovate in solutions
**Professional Skills:** Perform effectively within the professional environment. Work within a team, demonstrating interpersonal skills such as effective listening, negotiating, persuading and presentation. Be flexible and adaptable to changes within the professional environment

**Discipline Expertise:** Knowledge and understanding of chosen field. Possess a range of skills to operate within this sector, have a keen awareness of current developments in working practice being well positioned to respond to change.

**Responsible Global Citizenship:** Understand global issues and their place in a globalised economy, ethical decision-making and accountability. Adopt self-awareness, openness and sensitivity to diversity in culture.

**Effective Communication:** Communicate effectively both, verbally and in writing, using a range of media widely used in relevant professional context. Be IT, digitally and information literate.

**The means by which these outcomes are achieved and demonstrated**

All six attributes are relevant to this programme and will be developed throughout Level 7 of the MSc Data Analytics and Enterprise Architecture Management where they are integrated into all modules and assessed via unit study tasks (individual and group work) and through summative assessment tasks. Some graduate attributes are assessed in more than one module allowing for greater development of skills.

**Graduate Attribute Mapping**

| Module | Graduate Attribute |
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| Data Design | **Lifelong Learning:** Manage employability, utilising the skills of personal development and planning in different contexts to contribute to society and the workplace. |
| Data Handling and Decision Making | **Responsible Global Citizenship:** Understand global issues and their place in a globalised economy, ethical decision-making and accountability. Adopt self-awareness, openness and sensitivity to diversity in culture. |
| Data Visualisation and Interpretation | **Effective Communication:** Communicate effectively both, verbally and in writing, using a range of media widely used in relevant professional context. Be IT, digitally and information literate. |
| Architecture Design | **Professional Skills:** Perform effectively within the professional environment. Work within a team, demonstrating interpersonal skills such as effective listening, negotiating, persuading and presentation. Be flexible and adaptable to changes within the professional environment |
| Technology and Trend Monitoring | **Reflective Practitioner:** Undertake critical analysis and reach reasoned and evidenced decisions, contribute problem-solving skills to find and innovate in solutions |

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| Business Change Management | **Responsible Global Citizenship:** Understand global issues and their place in a globalised economy, ethical decision-making and accountability. Adopt self-awareness, openness and sensitivity to diversity in culture. |
| Research Project | **Discipline Expertise**: Knowledge and understanding of chosen field. Possess a range of skills to operate within this sector, have a keen awareness of current developments in working practice being well positioned to respond to change |

**13. Learning and teaching methods and strategies**

**Distance Learning**

Acquisition of all learning outcomes is via engagement with the online module learning material and the online tutoring and programme participant support mechanisms, both of which are delivered via Arden University's ilearn platform (a moodle-based system). The learning material comprises purpose-written self-contained lessons with frequent activities and feedback to generate learning and reinforce the knowledge acquisition through frequent application of learning to specific examples.

Embedded within the text are links to further reading and appropriate websites. Feedback within the learning material is provided to allow programme participants to check their understanding with that of the tutor. Additionally, group learning activities direct programme participants to the tutor-facilitated discussion forums where they engage in discussion with their peers and receive formative feedback from the module tutor.

Each of the 20 credit modules provide programme participants with an understanding of key theoretical and practical management issues, debates and academic informed literatures.

Teaching/learning methods adopted are transferrable across modules and are similar across modules and include online class discussions, exercises/case studies and group discussions.

For each subject being taught a programme of structured online learning activities using both formative and summative assessment is applied. The emphasis is on action learning through the mediation of the module leader for each module.

Learning and Teaching activities are:

**Asynchronous**

Independent and directed student study, supported throughout by comprehensive online multi-media teaching materials and resources accesses through our Virtual Learning Environment

Guided group / project based work

Research tasks

Discussion forums where students discuss and critically engage with themes emerging from the online materials they engage with, following the posing of questions or propositions, case studies or similar by either tutor or students themselves

Podcasts and narrated PowerPoints

**Synchronous**
Online seminars facilitated by VOIP's where theory and practice are integrated

Live chats

Based upon the profile of our typical student body, our strategy enables students to engage with a variety of learning tools that best meet their learning styles, overall objectives and personal circumstances. Independent study is the cornerstone of the learner experience, supported by subject specialist engagement with the tutor and peer engagement.

**Blended Learning**
A strategy which incorporates elements from the above criteria plus the support of face to face input will be utilised.

A-synchronous learning will be supported by in class face to face lectures, seminars and workshops. Students will have full access to the ilearn platform and all programme resources within it. Formative opportunities will be available in class and also via 'Adobe' hosted seminars.

Students will also have access to learning resources at each partner institution.

Student leaning will be supported and nurtured at our partner institutions by our tutor team and dedicated centre administrator and on line via our student support team.

Summative submissions will all be made via the 'Turn it In' platform.

**14. Assessment methods and strategies**

The assessment process involves both formative and summative elements and is continuing in nature.

There will be a focus on encouraging students to apply their knowledge to practical situations. A significant part of this comes from the Research project module. Here students will be required to identify a topic of interest to them, which falls within the encompassing field of management. Students will explore this, and will apply their research to the topic, putting forward recommendations which are of practical benefit to the organisation.

The approach to coursework assignments will be to encourage students to apply their knowledge to organisations or case study data sets. This could be achieved through the use of case studies, but will also involve employees applying information and approaches to their own organisations, or an organisation with which they are familiar.

The assessment designed for each module reflects the intentions of that module and will measure the identified learning outcomes. A variety of assessment strategies will be used to reflect and test the achievement of the learning outcomes. These are detailed within each module and mapped in the table below. Assessment questions and cases are seen to be dynamic and are reviewed quarterly in order to maintain rigour and reflect changes in professional focus and practice.

There is a requirement for written work at all levels including reports, essays, developed plans, portfolios of work etc. and our assessment policy informs how feedback is supplied by tutors at the formative and summative assessment stage. Critical analysis is encouraged at all levels culminating in a Research Project.

**Summative and Formative Assessment Mapping**

Summary of Summative & Formative Assessment

NOTE: In addition to the formal formative opportunities available to students (as highlighted within the table below) there are also numerous formative opportunities embedded within each module, for example: case studies with associated questions, short answer questions and forum discussions between tutors and peers

| **All Modules** | **Summative Assessment** | **Formative Assessment** |
|---|---|---|
| Data Design | 5,000-word analysis of an established data collection tool and specific data gathering problems to establish the desired outcome. Design and carry out initial pilot testing of a data gathering tool and evaluate the potential use of the data gathering tool within the specified context. In this case the tool can be anything that gathers data for analysis but students must have access to carry out a small pilot study in order to gather results to enable development recommendations to be made. | A number of formative assessment opportunities will be built into the module materials. Students will also have the opportunity to submit draft work for review prior to final submission. This will be up to, and including, a completed draft of the work no later than two weeks prior to the final submission date.<br><br>Students will be expected to submit their data gathering tool for review from a practical and ethical perspective before it is piloted. |
| Data Handling and Decision Making | 5000 word report based on statistical analysis of a large data set coupled with a concluding narrative demonstrating appropriate recommendations including an audit of the data environment and ethical considerations. | Formative assessment options will be available via a series of practical tasks set prior to the assessment. A draft submission will be allowed up to two weeks prior to the final submission date. |
| Data Visualisation and Interpretation | 3,500-word equivalent A0 poster presentation of an analysed dataset. The poster will be presented during an Adobe session to highlight the key data that will be used to address the problem set in the assessment. | A number of formative assessment opportunities will be built into the module materials. Students will also have the opportunity to submit draft work for review prior to final |

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| | Assessment is based upon the use of data visualisation tools to pick out the key data relevant to the problem statement and how well they communicate the intended outcomes.<br><br>1,500-word critique of the data visualisation methods presented by another student. Students will be given access to a recording of a poster presentation, and the poster itself, and will need to critique the methods being used. Crucially, the critique is on how well the chosen methods display the data rather than the person. The assessment is based upon how well the student applies the theory of data visualisation to the critique and there is no impact upon the grade of the student whose work is being critiqued | submission. This will be up to, and including, a completed draft of the work no later than two weeks prior to the final submission date. |
| Architecture Design | The module would be assessed through one individual coursework component (100%). The final deliverable is expected to be a technical report of 5000 words. The Coursework will consist of a case study based upon the student's own workplace and will require the student to assess the needs of the business and to evaluate current architecture tools and methods to develop a recommendation to enhance the organisation's IT working practices. | Formative tasks will be undertaken throughout the delivery of the module. A draft of the summative piece of work may be submitted for feedback no less than two weeks prior to the final assessment date. |
| Technology and Trend Monitoring | The module will be assessed through a single, 5,000-word document (100%). The assessment will be split into two parts. In part one the students will undertake research and evaluate the potential impact of a selected emerging technology. The second part of the assessment will require the students to generate a recommendation plan for integrating the emerging technology evaluated in part one to generate an innovative solution to a need within the business.<br>Exact topic and content to be addressed in the paper would be dependent on the research question | Formative feedback opportunities will be via ongoing tasks throughout the module as well as submission of a draft no less than two weeks prior to the final submission date. |

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| | and would be detailed in the coursework document. | |
| Business Change Management | Students will be required to design a change management plan for their own organisation, including details of audit, implementation and review phases. It is expected that there will be consideration made of ethical impacts as well as demonstration of cultural awareness. | Normally a draft of the assessment submitted no less than two weeks prior to final submission. |
| Research Project | 15,000-word dissertation or 5,000-word journal article | Normally at least three formative opportunities within the research project supervision process. |

**15. Employability**

Entrants to this programme are highly likely to be in work, (be it Full or part Time). The MSc in Data Analytics and Enterprise Architecture Management is designed to offer the degree of flexibility required to ensure that even those employed in full time positions have the maximum opportunity to fulfil their programme of study. The programme aims to develop skills and knowledge such that graduates can confidently enter the computing management environment or can improve their existing career prospects within it. This degree develops a range of transferrable skills and provides opportunities for these to be evidenced. In particular, the final research project provides the ability to demonstrate higher level academic skills.

The programme has been specifically designed to provide career development in a rapidly developing and business critical area and will be marketed as such. The vast majority of students are likely to be employed in the business function related to their chosen pathway and the courses will enable appropriate progression. However, it is noted that the distributed nature of Arden University students makes conventional careers support difficult for those who choose to study the programme and are not employed. The use of the 'Abintegro provider' allows us to offer a range of support in career development and there are opportunities for students to purchase more specialist support if required.

The addition of imbedded graduate attributes adds value to the qualification in terms of providing 'industry ready' graduating students.

**16. Entry Requirements**

Arden University is keen to ensure that the programme is available to all those who can benefit from it.

Normally entry is via:

A degree equivalent to UK second class honours standard,

English ability equivalent to IELTS 6.5 (no less than 6.0 in any element), where the medium of undergraduate study was not English;

Applicants with existing postgraduate computing management awards may be eligible for entry with advanced standing and will be considered through the APL process.
Applicants who have substantial relevant experience (typically 5 years) and are able to demonstrate via references and supporting curriculum vitae an ability to successfully complete the programme may be admitted where they do not possess degree equivalent qualifications. It is not intended to offer exemptions based on experiential learning.

**17. Programme Structure**

**MSc Data Analytics and Enterprise Architecture Management**

| Module Code | Module Title | Credits | Module Type (Core/Option) | Assessment Method |
|---|---|---|---|---|
| DAT7003 | Data Design | 20 | Core | Report |
| DAT7001 | Data Handling and Decision Making | 20 | Core | Case Study based Report |
| DAT7002 | Data Visualisation and Interpretation | 20 | Core | Presentation of Data Visualisation & Critique of Data Visualisation Methods |
| COM7002 | Architecture Design | 20 | Core | Coursework |
| COM7003 | Technology and Trend Monitoring | 20 | Core | Management Report |
| BUS7009 | Business Change Management | 20 | Core | Case Study based Report |
| RES7001 | Research Project | 60 | Core | Research Proposal & Dissertation or Journal Formatted Article & Viva |

| **18. Subject:** | I260 (Data Management), |
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**Last updated: February 2019 (V3)**

**Mapping of Intended Programme Learning Outcomes and Modules**

**MSc Data Analytics and Enterprise Architecture Management**

| | Programme Learning Outcomes / Modules | Module Type (Compulsory (C) | A1 | A2 | A3 | A4 | A5 | A6 | A7 | B1 | B2 | B3 | B4 | B5 | C1 | C2 | C3 | C4 | C5 | C6 | D1 | D2 | D3 | D4 | D5 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Level 7** | Data Design | C | X | | | | | | | X | X | | | X | X | | | X | X | | X | X | X | X | X |
| | Data Handling and Decision Making | C | | X | | | | | | X | | X | | X | | X | | X | X | | X | X | X | X | X |
| | Data Visualisation and Interpretation | C | | | X | | | | | X | | | X | X | | | X | X | X | | X | X | X | X | X |
| | Architecture Design | C | | | | X | | | | X | | | | X | | | | X | X | X | | X | | X | X |
| | Technology and Trend Monitoring | C | | | | | X | | | X | | | | X | | | | X | X | X | | X | | X | X |
| | Business Change Management | C | | | | | | X | | X | | | | X | | | | X | X | X | | X | | X | X |
| | Research Project | C | | | | | | | X | X | X | X | X | X | | | | X | X | X | | X | | X | X |