

## ARDEN UNIVERSITY QUALITY ASSURANCE DOCUMENT QA3 - PROGRAMME SPECIFICATION

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

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|---|---------------------------|-----------------------|------------------|---------------------|
| <b>10. Programme Aims</b>   |                           |                       |                  |                     |
| <p>The aim of the Arden University MSc Enterprise Architecture Management, programme is to provide a distinctive, inter-disciplinary and integrative educational programme aimed primarily at individuals who are either employed in or are desirous of entering management or strategic roles within the computing sector. The programme is designed to expose programme participants to a range of relevant topics relating to management within a computing or telecommunications context. 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.</p> <p>Programme participants will build on their existing understanding of the management of computing projects and organisations in a way that allows them to relate this to a range of contemporary management and computing ideas and practice within a global context as well as developing skills such as information security, enterprise design and infrastructure management. This is achieved through critical thinking, creativity and personal development.</p> <p>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:</p> <ul style="list-style-type: none"> <li>Evaluate the use of an ethical IT strategy for a given organisation</li> <li>Apply innovative approaches in the management of Information Systems departments</li> <li>Devise and critically assess innovative business improvement opportunities and create proposals to enhance practice</li> <li>Analyse IT strategy and take ownership of the alignment with organisational business goals</li> <li>Work supportively with others to streamline business process, functions, procedures and workflows</li> <li>An ability to critically manage stakeholder engagement in developing new processes and systems.</li> <li>Evaluate implementation and undertake reviews to evaluate benefits of new processes and systems.</li> </ul> <p>Arden Values Mapping: the table below identifies how programme outcomes (listed within section 11) meet provide for full coverage of Arden University Values.</p> |                           |                       |                  |                     |
|   | Knowledge & Understanding | Intellectual Thinking | Practical Skills | Transferable Skills |
| We Support People   | A5                        | B1                    | C6               | D4, D6              |

|  |                       |                            |                |                    |            |
|--|-----------------------|----------------------------|----------------|--------------------|------------|
|  |                       |                            |                |                    |            |
|  | We Do the Right Thing | A5, A7                     | B1, B2, B3, B5 | C2, C4, C5         | D3, D5, D6 |
|  | We Innovate           | A2                         | B4, B5         | C1, C3, C5         | D4, D6     |
|  | We Take Ownership     | A1, A2, A3, A4, A5, A6, A7 | B1, B5         | C1, C2, C3, C4, C5 | D4, D5, D6 |

| <b>11. Intended programme learning outcomes and the means by which they are achieved and demonstrated</b>  |  |   |
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| <b>MSc (180 credits)</b>   |  |   |
| <b>11a. Knowledge and understanding</b>  | <b>The means by which these outcomes are achieved</b>  | <b>The means by which these outcomes are demonstrated</b>   |
| <p>A1 – Critically evaluate the role of Information Systems on the generation and fulfilment of overall business strategy</p> <p>A2 – Analyse business planning methods and generate innovative IT solutions to meet planning needs.</p> <p>A3 – Evaluate the need for enterprise architectural design and demonstrate innovative solutions in the meeting of workplace enterprise architectural needs.</p> <p>A4 – Critically understand the evolution of technological trends and evaluate opportunities for adoption of emerging technologies in IT practice</p> <p>A5 – Evaluate the need for and impact of technology led organisational change and the ethical dilemmas posed during the process.</p> <p>A6 – Critically evaluate the role of data handling and decision making in the management Enterprise Architecture.</p> | <p>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:</p> <p>Asynchronous<br/>Independent and directed student study, supported throughout by comprehensive online multi-media teaching materials and resources accesses through our VLE</p> <p>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</p> <p>Podcasts and narrated PowerPoints</p> <p>Synchronous<br/>Online seminars facilitated by VOIPs where theory and practice are integrated.</p> <p>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.</p> | <p>Knowledge and understanding are assessed through in-module assessments of portfolio submissions, presentations, time-constrained examinations, and report based assignments.</p> <p>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.</p> |

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| <p>A7 – Undertake self-led research into computing issues in the workplace demonstrating an ethical approach to the application of research principles.</p>  | <p>Independent study is the cornerstone of the learner experience supported by engagement with the specialist tutor and peer engagement.</p> <p>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.</p>   |  |
| <p><b>11b. Intellectual (thinking) skills</b></p>  | <p><b>The means by which these outcomes are achieved</b></p>   | <p><b>The means by which these outcomes are demonstrated</b></p>   |
| <p>B1 – Individually and collaboratively analyse complex problems and requirements and systematically synthesise and evaluate a range of potential solutions.</p> <p>B2 - Demonstrate systematic, ethical and creative approaches to problem solving, showing initiative and originality.</p> <p>B3 - Systematically collect and use data from a wide range of sources to synthesise and evaluate effective decision alternatives in relation to design, construction or management of Information Systems.</p> <p>B4 - Synthesise and apply innovative methodologies, techniques, tools and technologies from a range of fields within computing to provide complete solution to novel or complex problems.</p> | <p>Intellectual skills (B1 – B5) are developed throughout the programme by the methods and strategies outlined in section A, above.</p> <p>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.</p> <p>Throughout, the learner is encouraged to develop intellectual skills further by undertaking further independent study and research.</p> <p>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.</p> | <p>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/dissertation.</p> |

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| B5 - Utilise judgement to draw appropriate conclusions and make innovative recommendations.  |  |   |
| <b>11c. Practical skills</b>   | <b>The means by which these outcomes are achieved</b>  | <b>The means by which these outcomes are demonstrated</b>   |
| <p>C1 - Shows technical expertise, making effective and efficient use of skills and adapting to new situations.</p> <p>C2 - Effectively and efficiently undertake a project within an organisation demonstrating effective individual working skills</p> <p>C3 - Effectively identify relevant information, software and data strategies in an organisation to enable innovation</p> <p>C4 - Articulate reasoned evidence to justify conclusions and recommendations.</p> <p>C5 - Demonstrate flexibility in adapting to novel and complex contexts.</p> | <p>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 managing projects, working within differing organisational and national cultures are provided by specific modules, as are specific inputs with an emphasis upon practical functional decision making skills related to market planning and strategy, market intelligence and communications; managing others; and managing knowledge in addition to specific practical skills commensurate with the chosen pathway.</p> <p>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. The in-course activities and assessment process in the final year particularly emphasise the acquisition of C2 and C3 with specific modules devised to highlight the practical differences in management skills required in differing contexts.</p> | <p>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.</p> |

| <b>11c. Transferrable skills</b>  | <b>The means by which these outcomes are achieved</b>  | <b>The means by which these outcomes are demonstrated</b>  |
|---|--|--|
| <p>D1 - Systematically and competently collate, synthesise and communicate complex information effectively</p> <p>D2 - Critically evaluate and use relevant research methods, both qualitative and quantitative.</p> <p>D3 - Demonstrate a reflective approach to work and the capacity to take responsibility for engaging in self-directed life-long learning for professional development.</p> <p>D4 - Work autonomously and collaboratively demonstrating the highest professional and ethical standards</p> <p>D5 - Manage time effectively by learning to plan and prioritise work in order to meet specified deadlines.</p> <p>D6 - Learn independently and collaboratively in the spirit of critical and self-reflective enquiry.</p> | <p>Personal responsibility becomes an increasingly important skill as students' progress, culminating in the writing of the Dissertation.</p> <p>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.</p> | <p>To develop transferable skills all assignments must meet time deadlines and word count guidelines. All assessed work must be submitted independently even where 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.</p> |

Exit Awards: Programme Outcome

| 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      | C1, C3, C5       | D1, D3, D4, D6       |
| Post Graduate Certificate (60credits) | A1, A2, A3                | B1, B2, B3          | C1, C3           | D3, D6               |

| 12. Graduate Attributes and the means by which they are achieved and demonstrated  |
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| <b>Graduate Attributes</b>   |
| <p>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.</p> <p>Lifelong Learning: Manage employability, utilising the skills of personal development and planning in different contexts to contribute to society and the workplace.</p> <p>Reflective Practitioner: Undertake critical analysis and reach reasoned and evidenced decisions, contribute problem-solving skills to find and innovate in solutions</p> <p>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</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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</p> |

| The means by which these outcomes are achieved and demonstrated   |
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| <p>All six attributes are relevant to this programme, however, five will be developed throughout Level 7 of the MSc Engineering 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.</p> <p>Graduate Attribute Mapping</p> |

| Module  | Graduate Attribute  |
|---|---|
| Business Plan Development   | Lifelong Learning: Manage employability, utilising the skills of personal development and planning in different contexts to contribute to society and the workplace.  |
| 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  |
| 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. |
| 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.   |
| 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.   |
| Data Handling and Decision Making<br>IS and Business Strategy Alignment | 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.   |

### 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 accessed 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 VOIPs 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 learning 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 Turnitin 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 Dissertation 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 Dissertation.

Assessment Mapping

| All Modules                        | Summative Assessment  | Formative Assessment   |
|------------------------------------|---|--|
| IS and Business Strategy Alignment | <p>For summative assessment, the students are given an opportunity to produce a detailed IS analysis report based on a case study of their own workplace. The first part of this report is focused on elicitation of long-term business and stakeholder requirements and proposal of corporate IS capable to meet them in the most effective and efficient way.</p> <p>The second assessment is a presentation, demonstrating effective communication skills that discusses the development and justification of a respective IS expansion strategy and policy relevant to the student's own working environment. Both components of this coursework are assessed individually.</p> | Formative feedback will be provided on each component in the form of feedback on draft work. Draft work may be submitted no less than two weeks prior to summative assessment. |
| Business Plan Development          | <p>The summative assessment is based on a strategic business plan, for their own workplace, that the students need to develop as a report using the concepts, approaches and frameworks they have studied over the course of this module. The reports key components to be assessed include business case formulation, business model development, market and competitor analysis, cost-benefit analysis, financial projections, risk mitigation strategy and compliance with corporate objectives.</p>   | Formative feedback will be provided on each component in the form of feedback on draft work. Draft work may be submitted no less than two weeks prior to summative assessment. |
| Architecture Design                | <p>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</p>  | 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                |

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|  | <p>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 organisations IT working practices.</p>  | <p>weeks prior to the final assessment date.</p>  |
| <p>Technology and Trend Monitoring</p>   | <p>The module will be assessed through a single, 5000 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.</p> <p>Exact topic and content to be addressed in the paper would be dependent on the research question and would be detailed in the coursework document.</p> | <p>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.</p>                       |
| <p>Business Change Management</p>        | <p>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.</p>  | <p>Normally a draft of the assessment submitted no less than two weeks prior to final submission.</p>   |
| <p>Data Handling and Decision Making</p> | <p>1000 word audit of the data environment and ethical considerations. Sources and types of data held within an organisation of the students choice (normally their own organisation) will be identified and the value analysed along with where gaps exist.</p> <p>4000 word report based on statistical analysis of a large data set coupled with a concluding narrative demonstrating appropriate recommendations.</p> <p>Assessment is based upon the quality of the data analysis undertaken, range</p>   | <p>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.</p> |

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|                  | of techniques etc. and the subsequent narrative that evaluates the findings and makes recommendations. |  |
| Research Project | 15000 word dissertation or 5000 word journal article   | Normally at least three formative opportunities within the dissertation supervision process. |

### 15. Employability

Entrants to this programme are highly likely to be in work, (be it Full or part Time). The MSc in 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 programmes aim 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 distributed nature of Arden University students makes conventional careers support difficult but 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 managerial 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 Enterprise Architecture Management

| Module Code | Module Title                       | Credits | Module Type (Core/Option) | Assessment Method                  |
|-------------|------------------------------------|---------|---------------------------|------------------------------------|
| COM7001D    | IS and Business Strategy Alignment | 20      | Core                      | Report and Individual Presentation |
| BUS7008D    | Business Plan Development          | 20      | Core                      | Report                             |
| COM7002D    | Architecture Design                | 20      | Core                      | Coursework                         |
| COM7002D    | Technology and Trend Monitoring    | 20      | Core                      | Management Report                  |
| BUS7009D    | Business Change Management         | 20      | Core                      | Case Study based Report            |

|          |                                   |    |      |  |
|----------|-----------------------------------|----|------|--|
| DAT7001D | Data Handling and Decision Making | 20 | Core | Essay and Case Study based Report                                      |
| RES7001D | Research Project                  | 60 | Core | Research Proposal and Dissertation or Journal Formatted Article & Viva |

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| 18. Subject: | I260 (Data Management), |
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**Last Updated: November 2018 (V2)**

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

| Programme Learning Outcomes |                                    | Module Type (Compulsory (C)) | A1      | A2 | A3 | A4 | A5 | A6 | A7 | B1 | B2 | B3 | B4 | B5 | C1 | C2 | C3 | C4 | C5 | D1 | D2 | D3 | D4 | D5 | D6 |   |
|-----------------------------|------------------------------------|------------------------------|---------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|---|
|                             |                                    |                              | Modules |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |   |
| Level                       | IS and Business Strategy Alignment | C                            | X       |    |    |    |    |    |    | X  |    |    |    | X  | X  |    | X  | X  |    | X  |    | X  |    | X  | X  |   |
|                             | Business Plan Development          | C                            |         | 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  |    |    | X  |    |    |   |
|                             | Business Change Management         | C                            |         |    |    |    | X  |    |    |    |    |    |    |    | X  | X  |    |    | X  |    |    |    | X  |    |    | X |
|                             | Data Handling and Decision Making  | C                            |         |    |    |    |    | X  |    |    | X  | X  | X  |    |    | X  |    |    |    |    | X  |    |    | X  |    |   |
|                             | Research Project                   | C                            |         |    |    |    |    |    | X  | X  | X  | X  | X  | X  |    | X  | X  | X  | X  | X  | X  | X  | X  | X  | X  |   |