QUALITY ASSURANCE DOCUMENT QA3 – PROGRAMME SPECIFICATION

1. Programme Code	TBC					
2. Programme Title	BSc (Hons) Computing					
3. Target Award Title	BSc (Hons) Computing Diploma of Higher Education in Computing Certificate of Higher Education in Computing					
4. Exit Award Title(s)	BSc Computing Diploma of Higher Education in Computing Certificate of Higher Education in Computing					
5. Subject area	Computing					
6. School	STEM					
7. Programme Team Leader(s)						
8. Programme Type	Specialist					
9. Delivery Model	DL F/T	✓	BL F/T	✓	Apprenticeship	
	DL P/T	✓	BL P/T	✓	Other	
Where delivery model identified as 'Other' please provide details						
10. Location of delivery	All Campus					
11. Proposed Start date	May 26					
12. Reference points	• QAA Subject Benchmark, Computing available here • The UKPSF for teaching and supporting learning in higher education available here. • Arden Excellence Framework for Inclusive Curriculum here					
13. Professional, Statutory & Regulatory Bodies (PSRB)	*BCS accreditation application in progress*					

14. Programme aims
The BSc Computing programme has been designed to enable students to undertake and achieve an undergraduate degree in Computing that prepares them to pursue related careers or pursue further study. The programme focuses on theories, techniques and practical skills related to the Computing subject area and industry, as well as the ethical and professional issues facing those working in the sector. The modules are designed to develop critical thinking and analytical skills with an emphasis on practical hands-on problem solving and the development of interpersonal and professional skills to support life-long learning. Topics covered within the modules are aligned to industry-related skill requirements and are supported with access to vendor

courses, labs and materials allowing for the opportunities to build professional skills, gain digital badges and certifications in preparation for a career with computing.

The purpose of the programme is to achieve the following:

- Develop highly employable Computing graduates that can demonstrate proficiency in a variety of platforms and industry standard tools enabling the development of the practical skills that are in demand in industry today.
- Evaluate the importance of computer-based systems with the knowledge and skills required to undertake an analysis of the requirements to design, develop and test computer-based systems and software in a systematic, ethical and professional manner.
- Examine the legal, regulatory, technological and ethical issues that impact on Computing professionals.
- Develop critical thinking, problem solving and research skills
- Develop interpersonal and communication skills, including formal report writing, academic writing and presentations, enabling them to work effectively as Computing practitioners and engage in lifelong learning.

15. Programme Entry Requirements

Please adapt standard/typical entry requirements as necessary.

Standard entry requirements:

- 2 x A-Level passes plus 3 x GCSE passes or equivalent.

Typical non-standard entry requirements:

- A minimum of 2 years of appropriate professional relevant work experience, or equivalent.

Standard English language requirements:

- English Language proficiency equivalent to IELTS 6.0, with no less than 5.5 in each component, if English is not the applicant's first language (or appropriate previous study in English).

- Candidates who demonstrate an ability to study the programme as evidenced through a personal statement (of between 350-500 words) that addresses their motivation for undertaking the programme; including their references, relevant prior experience and qualifications.

16. Learning, teaching and assessment methods and strategies

The programme is designed with Arden University's (AU) 'digital first' focus at the forefront, reinforced with a diverse array of learning, teaching and authentic assessment strategies. The programme employs an active learning blended learning approach that combines access to industry resources, technical and academic knowledge, online support and engagement with module lecturers and peers. This will enable learners to develop new skills and knowledge and apply them to solve problems. A variety of learning spaces will be created that are

inclusive, supportive and accessible to all to encourage the development of practical skills, critical thinking and creativity.

This approach of practical workshops and discussions will be supported by on-line learning materials and activities available via AU VLE, ilearn, which will be used to encourage individual and group contributions and discussions on key topics. These then will be further developed in workshops through practical problem-solving activities allowing learners to apply the theories, models and frameworks, adding depth and breadth to theoretical concepts to become effective learners. Materials and discussion groups will be available on the virtual learning portal to support and engage learners in topic specific queries posed by lecturers and peer groups ensuring diverse formative feedback and learning opportunities are available to all.

Practical workshops supplement the online materials and allow learners the opportunity to practise and acquire new technical and personal skills. Workshops will employ a range of approaches, including case studies, labs, group discussion and other forms of collaborative learning such as role-plays, one-to-one interactions including peer feedback and review, question and answer sessions.

In order to develop capacity and confidence as an effective learner, students will also engage in independent learning. Self-guided labs and online materials will be available to promote deep learning with links to further reading and appropriate websites. MCQs and feedback is provided within the learning materials to allow learners to check understanding and progress, whilst discussion forums will allow peer engagement and opportunities for formative feedback.

Teaching/learning methods adopted are transferrable across all modules and include online class discussions, exercises/case studies and group discussions. Assessments encourage students to embrace new challenges and adapt their approaches to solve problems, ensuring they are constantly learning new skills in preparation for employability and life-long learning.

For each subject being taught a programme of structured online learning activities using both formative and summative assessment is available with emphasis on active learning ensuring activities revolve around high student engagement and lecturer facilitation.

Learning and Teaching activities are:

Asynchronous

- Independent and directed student study, supported throughout by comprehensive online blended learning teaching materials and resources accessed through Virtual Learning Environment
- Guided group / project-based work
- Access to industry software and practical hands-on labs
- Online-self assessment, checkpoints and reflective activities
- Use of key module reading lists and signposting to AU learning resources
- Discussion forums

Synchronous

- Online and face to face workshop facilitated by lecturers where theory and practice are integrated
- Live chats
- On Campus and online assessment preparation and support sessions such as Office Hours and Study Support Sessions

Assessment Methods and Strategies

Assessment is carried out according to context and purpose and recognises that learners may exhibit different aptitudes in different forms of assessment. Assessments are based round real-world problems and learners will be encouraged to contextualise.

Opportunities for both summative and formative feedback will be clearly visible within the programme and assessment briefs and in line with Arden policy. Formative Feedback will be provided throughout the modules and is built into asynchronous and synchronous delivery through peer assessment in discussion forums/in sessions, group activities, draft submissions with feedforward feedback and tutorials with lecturers

Module	Portfolio	Project	Examination	Case Study	Practical	Report	Proposal
COM4024 Introduction to Academic Skills and Professional Development	X						
COM4014 Introduction to Web Authoring		X					
COM4015 Introduction to Databases					X		
COM4025 Introduction to Operating Systems and Security	X						
COM4018 Introduction to Programming					X		
COM4023 Introduction to Networking					X		
COM5020 Human Computer Interaction	X						
COM5021 Data Analysis and Visualisation		X					
COM5023 Systems Analysis & Design				X			
COM5022 IT Project Management						X	
COM5024 Advanced Databases					X		
COM5026 Object-Oriented Programming	X						
COM5025 Ethics, Quality and Sustainability in Technological Environment				X			

COM5027 Digital Business		X					
COM6013 Data Mining						X	
COM6015 Information Security Management				X			
COM6016 Distributed and Cloud Computing					X		
COM6011 Web Application Development		X					
COM6012 Technology Entrepreneurship							X
RES6011 Computing Project		X					

17. Intended programme learning outcomes and the means by which they are achieved and demonstrated		
Learning outcomes	**The means by which these outcomes are achieved**	**The means by which these outcomes are assessed**
At the end of this course you, the student, will be able to: *(No more than 10 programme learning outcomes are permitted per programme.)*		
1. Essential knowledge of principles and theories relating to the field of computing and the practices, languages and tools that may be deployed for the specification, design, implementation and evaluation of computer-based systems and artefacts.	Students will gain knowledge and understanding through: •Lectures and tutorials •Guided research •Supervised lab work •Case studies Lectures are supported by web-based materials and audio-visual content. These materials cover concepts, theories and methods. Guidance on further work and reading is also provided. Lectures also provide students with opportunities for questioning and interaction. Tutorials and seminars provide students with opportunities to undertake activities and workshops that facilitate the development of subject knowledge and understanding through peer support and discussion and sharing of ideas and experiences. Subject specialists will engage with the course as guest speakers, contextualising the concepts covered in modules. Case studies will provide further opportunities to contextualise learning.	Students' knowledge and understanding is assessed by the following coursework types: • Practical demonstrations • Reports and essays • Presentations Programme learning outcomes and module learning outcomes will be assessed through a variety of methods. These assessments will link theory and practice through essays, presentations case studies, reports and practical artefacts. Authentic assessments will ensure students use the same competencies that they will be asked to demonstrate as graduates. Formative feedback on tasks and drafts will be provided throughout the modules.
2. A systematic understanding of the professional, moral and ethical issues involved in the exploitation of computer technology, and the associated professional, ethical and legal practices		
3. Identify and critically analyse criteria and specifications appropriate to problems to be	Students will gain intellectual and thinking skills through:	Students' intellectual skills will be assessed by the following coursework types:

solved by computers and software and plan innovative strategies for their solution. 4. Critically evaluate computer-based solutions using a range of techniques. 5. Construct abstract representations through the use of appropriate analysis and modelling techniques. 6. Synthesise and apply methodologies, principles, techniques, tools and technologies from a range of fields within Computing to provide complete solutions to novel or complex problems.	• Discussions (online/face to face) • Group/individual activities • Simulations • Laboratory work • Case studies Thinking skills will be developed through case studies, further reading and analysis of primary and secondary data and sources, as well as problem solving exercises that promote and facilitate the development of intellectual skills. Students will be facilitated in developing as independent learners, through tutorial support and seminars. Students will develop skills of reflective practice throughout modules, applying this to their studies as well as considering how to increase their employability.	•Reports and essays •Presentations Students will develop their critical thinking, skills in persuasive arguments and reflective skills through reports, essays and presentations. Formative feedback on tasks and drafts will be provided throughout the modules.
7. Critically evaluate and analyse computer-based systems in terms of general quality attributes, risks or safety aspects that may be involved in their operation, and professional, ethical and legal issues. 8. Utilise computer systems and software for the construction and documentation of computer-based systems and software solutions, with practical emphasis on understanding the whole process involved in the effective	Students will gain practical skills through: • Group/individual activities • Laboratory work • Simulations • Guided walkthroughs • Case studies Teaching and learning will encompass those strategies outlined above as well as laboratory work and associated activities and exercises which will allow students to develop their practical skills, using strategies such as code walkthroughs, team coding, peer mentoring, scaffolding and authentic learning activities.	Students' practical skills will be assessed by the following coursework types: • Practical artefacts/demonstrations. • Presentations. • Portfolios • Reports (e.g. project initiation documents, proposals) Students will be given opportunities to demonstrate their proficiency in tools and techniques related to planning, developing and implementing computer systems and

deployment of computers to solve practical problems		software solutions as well as gathering data and presenting results. Formative feedback on tasks and drafts will be provided throughout the modules.
9. Plan, manage and control a project, taking account of professional and ethical issues		
10. Formulate research questions, deploy appropriate research methodologies and data collection methods and evaluate research findings examining practical, ethical and theoretical constraints.		

9. Graduate Attributes and the means by which they are achieved and demonstrated

Attributes must be covered and assessed in every level of study on a programme.

Graduate Attribute	The means by which these attributes are achieved	The means by which these attributes are assessed
1. Digitally literate	Digital technologies are used throughout the entire programme. Learners will interact with an online VLE environment to access online blended materials and engage with discussion forums and SAQs. Critical technologies for productivity such as Zoom and O365 will be used to participate in online meetings and subject specific digital technologies and tools will be used in each module for activities, lab exercises and assessments. All Arden University supporting resources such as Library and Careers Portal are also accessed via digital technologies. AST sessions are embedded across all levels and computing specific workshops are promoted in workshops. Extracurricular activities such as vendor labs will also be available for self-directed study and instructor led sessions allowing learners to	• Engaging with virtual learning environment • Use of subject specific and general digital tools within module labs and assessments • Use of digital best practice approach studies, assessment, and projects • Use of additional software and platforms within extra-curricular courses, activities and workshops

	gain digital badges. These will be available through modules within the VLE and promoted within. This learning outcome will be specifically achieved in the following modules: • COM4015 Introduction to Databases • COM5024 Advanced Databases • COM6016 Distributed and Cloud Computing • COM6011 Web Application Development • COM4023 Introduction to Networks	
2. Contextually innovative	Learners will be exposed to real life computing issues through online materials, workshop activities and assessments where they will need to assess business and technical issues, evaluate the different approaches and identify a solution. Students will examine the ethical and legal frameworks that will impact on their academic and professional practice through case studies and simulations. An awareness of the global context in which they will operate will be presented through a variety of activities, discussions and reflective exercises. This learning outcome will be specifically achieved in the following modules: • COM4014 Introduction to Web Authoring • COM4018 Introduction to Programming • COM5020 Human Computer Interaction • COM5026 Object Oriented Programming • COM5021 Data Analysis and Visualisation • COM6013 Data Mining	• Discussions, activities, and assessments are based around problem solving scenarios in which learners need to critically evaluate and contextualise the subject matter to create a solution. • Reflect on personal and professional development • Attending events such as guest speakers from different industry sectors and nations

3. Socially intelligent and proactively inclusive	There will be opportunities across all modules for peer collaborations and team engagements allowing learners to experience different views and gain an understanding of equality, diversity, and inclusion. This will be specifically highlighted through workshop activities and discussions forums. Learners are also encouraged and required to explore their own personal development route to university and career paths through reflection and use of SMART criteria (Specific, Measurable, Attainable, Relevant and Timebound) This learning outcome will be specifically achieved in the following modules: • COM4024 Introduction to Academic Skills and Professional Development • COM5022 IT Project Management • COM5025 Ethics, Quality and Sustainability in a Technological Environment • COM6012 Technology Entrepreneurship	• Discussion forums and virtual learning environment • Peer activities • Reflections consisting of personal and professional continuous development improvements to support potential career pathway of choice.
4. Professional knowledgeable in their subject area	Learners will be exposed to authentic business and computing issues through online materials, workshop activities and assessments. They will need to critically evaluate and contextualise security issues, reflect on the different approaches and identify a solution and justifications supported by a range of evidence from academia and professional body resources. Career events will be used to communicate and promote different opportunities. Career sessions are embedded across all levels to support students within their career pathways and professional development.	• Authentic Assessments • Self-directed learning, and access to professional courses • Engaging with library and academic skills resources • Engaging in extra-curricular activities such as career events and guest speakers

	Extracurricular activities such as professional vendor courses will be available for self-directed study and through instructor led sessions allowing learners to gain digital badges and certification where possible. This learning outcome will be specifically achieved in the following modules: • COM4025 Introduction to Operating Systems and Security • COM5023 Systems Analysis and Design • COM5027 Digital Business • COM6015 Information Security Management • RES6011 Computing Project	

19. Summary of modules and mapped programme learning outcomes

(List modules in order of delivery)

Level	Module Code and Module Title	Module type *Compulsory (C) or Optional (O)*	Pinned / Paired Modules	LO 1	LO 2	LO 3	LO 4	LO 5	LO 6	LO 7	LO 8	LO 9	LO 10	GA1	GA2	GA3	GA4
4	COM4025 Introduction to Operating Systems and Security	C	Pinned	X		X	X			X							X
4	COM4024 Introduction to Academic Skills and Professional Development	C	Pinned		X	X										X	
4	COM4014 Introduction to Web Authoring	C	Paired	X		X		X	X		X	X			X		
4	COM4015 Introduction to Databases	C	Paired	X	X	X		X	X		X		X	X			
4	COM4018 Introduction to Programming	C	Paired	X		X					X				X		
4	COM4023 Introduction to Networking	C	Paired	X		X	X				X			X			
5	COM5020 Human Computer Interaction	C	Paired	X	X	X	X	X	X	X	X	X	X		X		
5	COM5021 Data Analysis and Visualisation	C	Paired	X	X	X					X		X		X		
5	COM5023 Systems Analysis & Design	C	Paired	X	X	X	X	X	X	X		X					X
5	COM5022 IT Project Management	C	Paired	X	X	X			X	X	X	X				X	
5	COM5024 Advanced Databases	O	Paired			X		X			X			X			
5	COM5026 Object-Oriented Programming	O	Paired	X		X		X	X		X				X		
5	COM5025 Ethics, Quality and Sustainability in Technological Environments	O	Paired		X	X				X		X				X	
5	COM5027 Digital Business	O	Paired	X	X	X	X			X		X					X
6	COM6016 Distributed and Cloud Computing	C	Pinned	X	X	X			X		X	X		X			
6	RES6011 Computing Project	C	Pinned	X	X	X	X	X	X	X	X	X	X				X
6	COM6013 Data Mining	C	Paired	X					X		X	X			X		

Level	Module Code and Module Title	Module type *Compulsory (C) or Optional (O)*	Pinned / Paired Modules	LO 1	LO 2	LO 3	LO 4	LO 5	LO 6	LO 7	LO 8	LO 9	LO 10	GA1	GA2	GA3	GA4
6	COM6015 Information Security Management	**C**	**Paired**	**X**	**X**				**X**	**X**		**X**					**X**
6	COM6011 Web Application Development	**O**	**Paired**	**X**		**X**			**X**		**X**			**X**			
6	COM6012 Technology Entrepreneurship	**O**	**Paired**		**X**	**X**						**X**	**X**			**X**	