

# Programme specification

*(Notes on how to complete this template are provide in Annexe 7)*

## 1. Overview/ factual information

<b>Programme/award title(s)</b>	Foundation Degree in Digital Innovation
<b>Teaching Institution</b>	Ada, the National College of Digital Skills
<b>Awarding Institution</b>	The Open University (OU)
<b>Date of latest OU validation</b>	
<b>Next revalidation</b>	
<b>Credit points for the award</b>	240
<b>UCAS Code</b>	TBC
<b>Programme start date</b>	May 2017
<b>Underpinning QAA subject benchmark(s)</b>	Foundation Degree Qualification Benchmark (2015)
<b>Other external and internal reference points used to inform programme outcomes</b>	Level 4 Apprenticeship Standards for Software Developer <a href="https://www.instituteforapprenticeships.org/apprenticeship-standards/software-developer/">https://www.instituteforapprenticeships.org/apprenticeship-standards/software-developer/</a>
<b>Professional/statutory recognition</b>	
<b>Duration of the programme for each mode of study (P/T, FT,DL)</b>	Two Years FT
<b>Dual accreditation (if applicable)</b>	N/A
<b>Date of production/revision of this specification</b>	

**Please note: This specification provides a concise summary of the main features of the programme and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if s/he takes full advantage of the learning opportunities that are provided.**

**More detailed information on the learning outcomes, content, and teaching, learning and assessment methods of each module can be found in student module guide(s) and the student's handbook.**

**The accuracy of the information contained in this document is reviewed by the University and may be verified by the Quality Assurance Agency for Higher Education.**

## 2.1 Educational aims and objectives

The general educational objectives of the programme are:

1. To provide students with knowledge and understanding of the fundamental principles and technologies that underpin the discipline of computing.
2. To provide opportunities, through optional pathways and integrated work based learning, for students to gain additional knowledge of specialised aspects of Computing of relevance to their organisations.
3. To develop, in a flexible and progressive structure, students' knowledge and understanding of essential facts and theory, with the ability to use this knowledge to devise, specify, design, implement, test, document and critically evaluate computer-based systems.
4. To enhance the employability of graduates by providing them with a range of transferable skills applicable to the work environment.
5. To develop students' abilities to apply independent critical thinking, communication skills and self-management skills to identify problems in their organisations and formulate and implement effective solutions.
6. To develop appreciation on the part of the student of the professional, moral and ethical issues involved in IT as well as a degree of adaptability in the rapidly-changing environment.
7. To provide a basis for progression in career and educational development through additional study for an honours degree.

The specialised route aim to engender the following objectives in addition to those above.

### Foundation Degree in Digital Innovation (Technical Pathway)

- To equip students to work as professional in the field of software development, particularly in environments where competence in computer hardware, software and distributed information systems is required.
- To provide an in-depth knowledge of the management, organisation and execution of large-scale software design and development activities including reuse and integration, and testing.

### Foundation Degree in Digital Innovation (Creative Pathway)

- To prepare the student to take an active role in the creation of computational systems in digital media and other areas of the software industry that require

creative individuals.

- To educate in the theory, technology, practice and application of computing and the development of creative digital media and/or and the development of modern computer games.

#### Foundation Degree in Digital Innovation (Entrepreneurial Pathway)

- To provide students with the skills, knowledge and practical experience required to respond to the challenges involved in managing, commercialising and marketing technological innovation and new business development, in various emerging technologies.
- To provide an awareness and understanding of how organisations build value through the application of entrepreneurial and innovative practices.

#### 2.2 Relationship to other programmes and awards

(Where the award is part of a hierarchy of awards/programmes, this section describes the articulation between them, opportunities for progression upon completion of the programme, and arrangements for bridging modules or induction)

The degree offers students progression from Level 4 through to Level 5 and incorporates the CertHE exit award, and culminates in the foundation degree.

2.3 For Foundation Degrees, please list where the 60 credit work-related learning takes place. For apprenticeships an articulation of how the work based learning and academic content are organised with the award.

*Please see Section 6*

#### 2.4 List of all exit awards

*Certificate of Higher Education (CertHE)*

### 3. Programme outcomes

Intended learning outcomes are listed below.

**LEVEL 4 :** On successful completion of Level 4, the students should be able to :

3A. Knowledge and understanding (Level 4)	
Learning outcomes:	Learning and teaching strategy/ assessment methods
<p><b>A1.</b>Have knowledge of the underlying concepts and principles associated with computer science, and an ability to evaluate and interpret these within the context of their work role.</p> <p><b>A2.</b>Identify the principles and application of the concepts involved in the specification, design, implementation, and testing of software applications and systems.</p> <p><b>A3.</b>Demonstrate a good knowledge of the software development lifecycle, the role of project management and team-working in developing computing and information systems solutions to problems faced by organisations and individual users.</p> <p><b>A4.</b>Recognise and appreciate the professional and ethical responsibilities of the practising computer professional, including understanding the need for quality.</p>	<p><b>Teaching/learning strategy</b></p> <p>Acquisition of 1-4 is achieved mainly through lectures, and student learning and understanding is consolidated, exemplified and used in the more student-centred activities of problems classes, laboratory sessions, coursework and projects. Core aspects of computing are covered in in this stage and understanding is reinforced through small group tutorials. Throughout the programmes, including this level, the students are encouraged to carry out independent background reading and private study, in order to broaden and consolidate their knowledge and understanding of the subject. Self-directed learning is facilitated by directed reading, study guides and web-based material.</p> <p><b>Assessment methods</b></p> <p>Assessment of 1-4 is carried out by means of the assessment methods of the individual modules. Assessment methods for each module studied are specified in the module specification, so that students have access to this information before the start of each module.</p> <p>Students are informed of the nature and weighting of each module's assessment methods and of the approximate schedule for setting and submission of any coursework assignments at the beginning of the</p>

3A. Knowledge and understanding (Level 4)	
	<p>module. Apart from project-based modules, most modules are assessed by a combination of an end of semester examination and coursework. Activities that are assessed within modules include problem solving-based activities, carrying out computational projects, writing technical reports, computer programs or essays, and giving oral presentations. Feedback is given to students on all coursework.</p>

3B. Cognitive skills (Level 4)	
Learning outcomes:	Learning and teaching strategy/ assessment methods
<p><b>B1.</b>Apply programming principles and constructs to implement solutions to small scale problems.</p> <p><b>B2.</b>Evaluate the appropriateness of different approaches to solving problems related to the study of computer science and their work role.</p> <p><b>B3.</b>Appreciate the role of evaluation and testing in ensuring that computer-based systems meet pre-determined criteria.</p> <p><b>B4.</b>Communicate the results of their study/work accurately and reliably, and with structured and coherent arguments.</p>	<p><b>Teaching/learning strategy</b></p> <p>Intellectual and cognitive skills are developed throughout the programmes, using a variety of teaching and learning methods. More formal teaching activities, such as lectures, are used to demonstrate methods and techniques used to solve computing problems, while problems classes, tutorials, and coursework are activities during which students develop their individual intellectual skills.</p> <p><b>Assessment methods</b></p> <p>The assessment methods applied throughout the programmes are designed to test the student's acquisition of skills 1-3 through the production of coherent written and/or oral responses (skill 4) either to problems or tasks set. The skills are assessed throughout the programmes, some examples of assessment methods for the individual skills being unseen written examinations and coursework assignments. Students need to develop a portfolio of documents and projects which</p>

3B. Cognitive skills (Level 4)	
	will demonstrate the application of knowledge gained from the academic modules to the student's work experience. The portfolio is not formally assessed at this level, but is carried out as a part of student's PDP.

3C. Practical and professional skills (Level 4)	
Learning outcomes:	Learning and teaching strategy/ assessment methods
<p><b>C1.</b>Apply sound programming principles to the construction and maintenance of software using appropriate programming paradigms and languages.</p> <p><b>C2.</b>Employ analytical techniques and design tools in the development of software artefacts.</p> <p><b>C3.</b>Present, evaluates, and interprets qualitative and quantitative data, to develop lines of argument and make sound judgments in accordance with basic theories and concepts of computer science.</p> <p><b>C4.</b>Develop appropriate practical, academic and professional skills essential for working within the computing industry.</p>	<p><b>Teaching/learning strategy</b></p> <p>Skills 1 to 4 are developed in a number of modules and promoted primarily through practical work. From the start of the programme, students receive guidance and gain practical experience via supervised practical classes and directed study. As the programme progresses, these skills are further encouraged by the introduction of larger scale problems and project work in level 5.</p> <p><b>Assessment methods</b></p> <p>Assessment is through assessed coursework. Coursework consists of both written reports and practical assignments.</p>

3D. Key/transferable skills (Level 4)	
Learning outcomes:	Learning and teaching strategy/ assessment methods
<p><b>D1.</b>Work as a member of a development team, recognising the different roles within a team and different ways of organising teams;</p> <p><b>D2.</b>Reflect systematically on your solution and your own performance to further develop learning.</p> <p><b>D3.</b>Formulate an action plan for personal improvement, in the context of their work role and career.</p>	<p><b>Teaching/learning strategy</b></p> <p>Transferable skills are developed through a number of different activities. Although they are not all explicitly taught, these skills are learnt throughout the programmes. Report-writing skills, interpreting information are emphasised in assignment reports and essays.</p> <p><b>Assessment methods</b></p> <p>These areas are assessed through written assignments, software programming exercises and individual /group practical assignments.</p>

**LEVEL 5 :** On successful completion of Level 5, the students should be able to :

<b>3A. Knowledge and understanding (Level 5)</b>	
<b>Learning outcomes:</b>	<b>Learning and teaching strategy/ assessment methods</b>
<p><b>A5.</b> Demonstrate competency in object-oriented design and algorithmic and mathematical approaches to solve medium scale problems.</p> <p><b>A6.</b> Demonstrate the knowledge of the main methods of enquiry in computer science, and ability to evaluate critically the appropriateness of different approaches to tackling computer science issues.</p> <p><b>A7.</b> Understand the principles and application of the concepts involved in user centred design of interactive products, the use of interactive media in information systems and Human Computer Interaction.</p> <p><b>A8.</b> Demonstrate knowledge and understanding of the range of uses of computing systems in creative contexts and discuss methods of evaluating a system's effectiveness in a given context</p>	<p><b>Teaching/learning strategy</b></p> <p>Acquisition of 5-8 is achieved mainly through lectures, and student learning and understanding is consolidated, exemplified and used in the more student-centred activities of problems classes, laboratory sessions, coursework and projects.</p> <p>These core components learnt at level 4 are built on at Level 5 with more emphasis on self-directed study via directed reading and research.</p> <p><b>Assessment methods</b></p> <p>Assessment is through a combination of unseen written examinations, assessed coursework individual work-based project work. Coursework consists of both written reports and practical assignments.</p>



3B. Cognitive skills (Level 5)	
Learning outcomes:	Learning and teaching strategy/ assessment methods
<p><b>B5.</b> Select, apply and critically evaluate appropriate techniques for the analysis, design, development and testing of computer solutions to meet given user requirements.</p> <p><b>B6.</b> Generate an innovative design to solve a problem containing a range of commercial and industrial constraints</p> <p><b>B7.</b> Select and deploy appropriate theory, practices and tools for the specification, design, implementation and evaluation of application software and computer-based systems (including, distributed systems and web-based systems) to meet given requirements under practical constraints</p> <p><b>B8.</b> Demonstrate the skills necessary to plan, conduct, critically evaluate and report and present a substantial project in commercial setting.</p>	<p><b>Teaching/learning strategy</b></p> <p>Cognitive abilities skills are developed progressively throughout this level. Students are encouraged to think for themselves by being presented with a range of problems to solve. The lecturers present worked solutions to selected problems and problem solving is further reinforced in tutorials and laboratory work. Students are exposed to models for various computer systems at this level. This level introduces an individual work-based project during the conduction of which students are encouraged to deploy and further develop skills learnt in other modules.</p> <p><b>Assessment methods</b></p> <p>Assessment is through a combination of unseen written examinations, assessed coursework and individual work-based project work. Coursework consists of both written reports and practical assignments.</p>

3C. Practical and professional skills (Level 5)	
Learning outcomes:	Learning and teaching strategy/ assessment methods
<p><b>C5.</b> Successfully plan and execute a medium-scale software project with appropriate software engineering principles.</p> <p><b>C6.</b> Apply underlying concepts and principles outside the context in which they were first studied, including, where appropriate, the application of those principles in an employment context.</p> <p><b>C7.</b> Use a range of established techniques to initiate and undertake critical analysis of information, and to propose solutions to problems arising from that analysis.</p> <p><b>C8.</b> Effectively communicate information, arguments, and analysis, in a variety of forms, to specialist and non-specialist audiences, and deploy key techniques of the discipline effectively.</p>	<p><b>Teaching/learning strategy</b></p> <p>Skills 5 to 8 are developed in a number of modules and promoted primarily through practical work. From the start of the programme, students receive guidance and gain practical experience via supervised practical classes and directed study.</p> <p><b>Assessment methods</b></p> <p>Assessment is through assessed coursework and individual work-based project. Coursework consists of both written reports and practical assignments.</p>

3D. Key/transferable skills (Level 5)	
Learning outcomes:	Learning and teaching strategy/ assessment methods
<p><b>D4.</b> Work as an effective member of a project team, managing the interface between computing, the organisation and the end-users, recognising the different roles within a team and different ways of organising teams.</p> <p><b>D5.</b> Develop self-management skills to manage one's own time, meet deadlines and work with others.</p> <p><b>D6.</b> Manage one's own learning, exercise initiative, demonstrate an understanding of the context of legal, moral and ethical issues, gain personal responsibility and development in preparation for professional employment or further study</p>	<p><b>Teaching/learning strategy</b></p> <p>Transferable skills are developed through a number of different activities. Although they are not all explicitly taught, these skills are learnt throughout the programmes. Report-writing skills, interpreting information are emphasised in assignment reports and essays.</p> <p><b>Assessment methods</b></p> <p>These areas are assessed through written assignments, software programming exercises and individual /group practical assignments, as well as the individual work-based project.</p>

#### 4. Programme Structure

##### Year One (Six core modules)

Computer Programming

System Development Life Cycle (SDLC)

Data Structure & Algorithms

Database Systems

Testing –Integration & Automated

Ethics & Commercial Reasoning

*All modules are worth 20 credits*

Award: Certificate of Higher Education (CertHE), 120 Credits

##### Year Two (Four core modules, Two pathway modules)

Advanced Programming

Data Analytics & Business Insights

Interactive User Interface Design

Work-based Project

**Technical Pathway**

**Creative Pathway**

**Entrepreneurial Pathway**

Distributed Systems

Web Design & Authoring

Entrepreneurship & Innovation

Artificial Intelligence

Mobile app. Development

Business Risk Analysis

*All modules are worth 20 credits*

Award: Foundation Degree, 240 Credits

Programme Structure - LEVEL 4			
Compulsory modules	Credit points	Optional modules	Credit points
1. Computer Programming	20	None	
2. System Development Life Cycle (SDLC)	20		
3. Database Systems	20		
4. Data Structure & Algorithms	20		
5. Testing –Integration & automated	20		
6. Ethics & Commercial Reasoning	20		

**[Award: Certificate of Higher Education (CertHE), 120 Credits]**

Programme Structure - LEVEL 5				
Compulsory modules	Credit points	Pathway modules		Credit points
1. Advanced Programming	20	Technical Pathway	Distributed Systems	20
2. Interactive User Interface Design	20		Artificial Intelligence	20
3. Data Analytics & Business Insights	20	Creative Pathway	Mobile app. Development	20
4. Worked-Based Project	20		Web Design & Authoring	20
		Entrepreneurial Pathway	Entrepreneurship and Innovation	20
			Business Risk Analysis	20

**[Award: Foundation Degree, 240 Credits]**

#### 4. Distinctive features of the programme structure

- **Where applicable, this section provides details on distinctive features such as:**

- where in the structure above a professional/placement year fits in and how it may affect progression
- any restrictions regarding the availability of elective modules
- where in the programme structure students must make a choice of pathway/route
- **Additional considerations for apprenticeships:**
  - how the delivery of the academic award fits in with the wider apprenticeship
  - the integration of the 'on the job' and 'off the job' training
  - how the academic award fits within the assessment of the apprenticeship

- The programme combines traditional academic learning with work- based learning, making it easier to apply new knowledge and skills into the workplace environment.
- The degree has two stages, each equivalent to a normal academic year. It is equivalent to the first two years of a BSc (Honours) degree programme, and in fact will lead to the possibility of direct entry onto the third year of the BSc Programme.
- The pattern of study is designed to fit around full-time employment and uses a blended learning approach, which mixes work-based study and attendance at on-campus study days.
- This approach allows students to be both productive employees, learning relevant skills on the job, and participants in a learning community of students who are broadening and deepening their professional knowledge together.
- The programme is 50 weeks' duration per year during Level 4 and Level 5, with 80% of work-based learning and 20% of college study.
- The first eight weeks of the programme is delivered as "Launch-pad" at the college. The Launch-pad will provide an opportunity for students to consolidate their learning, receive academic tutorial support, allow revision time and provide an introduction to the next unit in the schedule.
- This programme provides students with an up-to-date, relevant Higher Education qualification in computing in association with IT placement providers.
- The programme ensures that the successful students are joining the industry fit for purpose, and have the ability to respond to the rapidly changing demands of the industry. This is achieved by combining formal lectures, hands-on practical experience, and the embedding of work- based learning.
- There are a variety of work based learning opportunities available to students through both paid and unpaid internships which satisfy short term contracts. In all cases, students are supported by the employer and college staff.
- The programme offers three pathways namely, Technical, Creative, and Entrepreneurial, as well as flexibility to incorporate work-based projects. The curriculum is designed with input from employers to ensure its relevance to

industry that aims at developing the skills and knowledge required for a wide range of computing-related career paths.

- Students are asked to identify their chosen pathway at the time of enrolment, but are allowed swap between pathways during the first two weeks of their programme registration.

## **5. Support for students and their learning**

*(For apprenticeships this should include details of how student learning is supported in the work place)*

### **5.1 Overview**

The general approach is predicated on providing a degree that:

- Reflects current professional practice and values that help apprentices to continually develop as world-class professionals.
- Is tailored by consultation with local employers.
- Provides a professional approach to the delivery of learning and teaching that is built upon staff professional skills, research informed subjects and continuous professional development.

The learning, teaching on these degrees provide:

- An emphasis on professional skills development within the workplace and at college that is embedded in the learning, teaching and assessment process.
- A clear structure for Personal Tutoring System. This provides a personal tutor inside the college that is complimented by a work mentor. By establishing a single point of contact for student support in both organisations (college and employer), we ensure a simple model for support that removes barriers and enables all parties to be aware of the other's point of view.
- Alternative modes of learning to support the needs, preferences and abilities of all of our students. A mix of alternative approaches such as lectures, seminars, laboratory classes, simulations, videos and self-directed study will be used.
- Using research informed teaching as a bridge between research and teaching with an increased emphasis at level 5.
- Use of diagnostic online and in-class testing to identify student progress and individual learning needs. Flexible levels of additional support to challenge exceptional students and support those identified as needing further help to progress.
- The consistent use of a wide range of digital resources including IT equipment, imaginative use of a virtual learning environment and digital library resources.
- Working in partnership with students to enhance their experience, including staff-apprentice liaison meetings and regular apprentice surveys of learning,

teaching and assessment at a module and programme level.

- Independent Learning and Reflection that requires learners to take responsibility for their own learning by being pro-active in seeking out new learning opportunities.

## **5. 2 Technology Enhanced Learning**

The use of technology enabled learning materials, allows flexibility in the delivery of the programme, supports independent learning, and aids inclusivity. All units will make extensive use of the College's virtual learning environment (VLE), Moodle™. The VLE is used, not only as a repository for course notes, examples and exercises and a mechanism for making announcements, but also to provide additional learning resources such as videos, links to journal articles, formative quizzes, and a mechanism to submit assessments and return feedback. Students using the VLE will be able to take their learning beyond the classroom.

As part of the introduction to their module, module leaders will introduce students to the Moodle site, and how to navigate their way round it and how it will be used on that particular unit. To facilitate remote meetings staff and students may make use of screen sharing technologies and video conferencing software (e.g. Skype™). Employers will not have access to student Moodle areas but some form of electronic forum will be used to maintain contact with work mentors.

## **5.3 Personal Development Planning**

Personal Development Planning (PDP) is designed to help students make the most of their college education and to help plan their career. PDP focuses on helping students to develop a range of academic skills. It also facilitates preparation for their career after graduation. A comprehensive guide for PDP is provided in Student Handbook and it can also be found on the college's VLE.

*For Apprentices Support please see Section 6*

# **6. Work-based Learning Framework**

Authentic and innovative work-based learning is an integral part of foundation degrees and their design. It enables learners to take on appropriate role(s) within the workplace, giving them the opportunity to learn and apply the skills and knowledge they have acquired as an integrated element of the programme. It involves the development of higher-level learning within both the higher education provider and the workplace. It is a two-way process, where the learning in one environment is applied in the other. Work-based Learning and engagement with employers have been embraced accordingly in this programme through a number of modules but principally in the Level 5 Work-based Project module.

## **6.1 Educational aims of the WBL Framework**

The aims of the WBL Framework are:

- To enable the College to provide higher education programmes customised to



the needs of employer partners.

- To provide accessible and flexible opportunities for the apprentices to gain a comprehensive range of higher education qualifications at levels 4 to 5.
- To provide a means to recognise and accredit higher-level learning that is specifically achieved in the context of work to promote continuing personal and professional development.
- To enable individuals to recognise their own work-based learning as the subject of higher education study.
- To enable individuals to develop higher-level knowledge and understanding, and cognitive, practical, personal and enabling skills from the study of their own work-based learning.
- To provide the means to construct negotiated work-based projects, in partnership with employers that are designed to meet their development needs.

## **6.2 Descriptors and Learning outcomes**

Work Based Learning Framework specify opportunities for students to achieve and demonstrate learning outcomes at appropriate academic levels (4 to 5). The Framework includes work-based learning level descriptors that describe learning achievement in four categories at each level:

- Knowledge and understanding
- Cognitive skills
- Practical skills
- Personal and enabling skills

All work-based learning modules specify learning outcomes that appropriately reflect these level descriptors. The work-based learning outcomes describe what students should be able to demonstrate on successful completion of a Work Based Learning module.

## **6.3 Learning and Teaching**

Work-based learning operates a blended learning and teaching approach in line with the College's Learning, Teaching and Assessment strategy. The following methods are offered to enable students to develop their knowledge and understanding:

- Induction workshops
- Formative feedback on work from the student's workplace mentor
- Tutor-led face to face and online discussion/meeting
- Student-led interaction via online discussion forums

- Student-led interaction with workplace colleagues
- Self-directed learning facilitated by programme handbook and other learning materials

#### **6.4 Assessment**

Methods used to assess the apprentice at workplace must be valid and reliable, and allow for the generation of evidence which is sufficient to make judgments about the apprentice's level of knowledge and understanding, skills and competencies. The assessments will result in a portfolio of evidence the 'quality' of which is graded as part of the overall classification of the Apprenticeship (i.e. Distinction, Merit, Pass, Fail)

#### **6.5 Portfolio**

To successfully complete an apprenticeship, the learners needs to demonstrate both knowledge and have the skills of applying that knowledge in the workplace which is demonstrated with work based 'evidence'. The evidence contained in the portfolio will comprise of complete and/or discrete pieces of work that covers the totality of the Level 4 Software Developer Apprenticeship Standard.

In the portfolio, apprentices present evidence from real-work projects, illustrating the application of all the knowledge, skills and behaviours set out in the standard. This is produced towards the end of the apprenticeship with evidence from projects that have been completed, usually, towards the end of the apprenticeship. The portfolio is assessed as part of the end- point assessment, and is not formally assessed whilst on programme. The portfolio is not evidence that the learning has taken place, but is evidence that the apprentice has applied that learning in a holistic and coherent way.

The evidence contained in the portfolio will comprise a small number of complete and/or discrete pieces of work which, together, cover the totality of the Standard. It will showcase their very best work, enabling them to demonstrate how they have applied their knowledge and understanding in a real-work environment to achieve real-work objectives. Employers and training providers will assist the apprentice to assemble their portfolio to ensure that the summative portfolio is complete, that it covers the totality of the Standard and has been done to a satisfactory standard. Wherever possible, this will be an e portfolio or other electronic platform. The evidence should be based on real work projects or outputs.

Evidence of work-based activities may be in the form of:

- Reports
- Practical exercises
- Projects
- Minutes
- Appraisals against performance objectives
- Development plans
- Records of observation of performance and professional discussions

- Personal reflective log
- Feedback on behaviours via contact with others
- Team work - manager's report
- Emails
- Customer comments

The completed portfolio will be assessed against the requirements summarised in the standard and set out in detail in the occupational brief. This is carried out by an independent assessor who makes their own judgement on the quality of the work. The independent assessor may also note particular aspects of the work that they wish to discuss with the apprentice during the interview, either to confirm their judgement and/or provide further information on which to base their grading decisions. The evidence will be assessed against all components of the standards, i.e.:

- Technical competencies
- Technical knowledge and understanding
- Underpinning skills, attitudes and behaviour.

The evidence in the portfolio will be examined for:

- Completeness – the evidence in the portfolio, taken together, must cover the totality of the standard
- Quality – the evidence must at least satisfy the minimum requirements for each area of the standard,

Link Tutors will assist the apprentice to develop their portfolio to ensure that it is complete and that it covers the totality of the Standard.

## **6.6 Work-based Project (WBP)**

The work-based project (WBP) is a part of the Foundation degree which contributes to the final mark (i.e. classification) of the degree. The details of the assessment are contained in the respective module descriptor as well as the student handbook. The WBP is a substantial piece of work to be undertaken at level 5, during the second year of the degree.

The project must bring together elements of learning from different parts of the programme and show evidence of accumulated knowledge and understanding of management, and the application of these within their organisation. The project must meet the Standard and demonstrate the approach taken to the planning and completion of the project.

Because of the significance of the project, the employer and college must work together with the apprentice to agree a project that is achievable within the employer's business constraints whilst meeting the needs of the Standard. The project should be conducted as part of the apprentice's normal work. The employer should make allowances, in terms of time and resource, for the project to be undertaken. Any elements which need to be undertaken outside of normal work should be agreed between the employer,

apprentice and Provider so that apprentices are not disadvantaged in any way from performing their job and meeting the requirements of the project.

The process starts off by apprentices submitting a proposal. Apprentices are strongly advised to consult with their line managers when preparing the proposal, to discuss /consider issues such as ethics, IP, data protection, confidentiality, etc.

The proposal requires approvals of both the college (academic standards) and the employer (work place standards). This will be finalised through discussion between Ada, the employer and the student. (In some cases the proposal is returned to the apprentice for minor/major changes based on the College/Employer feedback). Upon the approval of the proposal, apprentices will settle on their project, in conjunction with the employer and the academic team.

The requirements for the delivery of the work-based project are shown below:

### Design

- A specification must be developed to show what has to be delivered on completion of the project - this must include the outputs, project plans etc.
- Terms of reference must be developed by the apprentice and agreed by the college and employer early in the project.
- The college must provide clear project assessment criteria including those for the terms of reference, approach to the problem, solution design and implementation, the final report and presentation.
- Apprentices must document their assumptions and highlight the consequences of these assumptions – enabling them to demonstrate their understanding of commercial pressures and the application of their thinking and problem solving skills
- Agreement must be made between the apprentice, employer and college on what systems, tools and platforms will be required (if any) to complete the tasks and how these will be made available.

### Delivery

- The College will work with the employer and apprentice to agree the project title and support arrangements required to enable the project to be undertaken
- The project should normally be based on an agreed business problem that forms part of the apprentice's role.
- Suitable time should be set aside by the employer for the apprentice to plan, undertake and write up their project.
- The apprentice must first work out what is required and present terms of reference and an initial plan for agreement with the employer and Provider
- The project should typically be undertaken at the employer's premises
- The employer and the College must ensure that the apprentice has access to the tools and systems required to complete the tasks within the project
- The apprentice must provide a signed statement to confirm the project is their

own work.

- The project will be set and completed during the second year of the degree

### *Project Environment*

A suitable project environment should be provided ensuring access to all required tools and systems. This will be the apprentices' normal place of work

Someone responsible for managing the project from the employer perspective must be identified

The link tutor from the College must oversee and provide support to the apprentice.

The work-based project will contribute towards the achievement of the degree

## **6.7 Threshold Requirements:**

The Ada College will take responsibility for the quality of the learning opportunities delivered via work-based learning and will ensure individual and collective responsibilities of students, link tutors and work place mentors are clearly defined. The following provides an indicative list of what all parties required to do in work-based activities:

Students are required to:

- Engage fully during planned Work-based Learning program in order to achieve the stipulated learning outcomes.
- Inform the Link Tutor of any issue that might prevent progress in, or satisfactory completion of the learning outcomes.
- Conform to the regulations and policies of the workplace organisation and expected standards of ethical behaviour.
- Maintain the confidentiality of any sensitive information concerning the organisation and its business.
- Submit the report within the specified deadline.
- Undertake any assessments which may be required to meet the programme learning outcomes.

The Link Tutors are required to:

- Oversee the assessment of students during or following
- Visit the students at the workplace regularly for assessment and provision of support
- Oversee the assessment of students during the programme
- Provide guidance and support on request and act as the initial college contact for students
- experiencing difficulties during work-based learning;

- Respond to student queries/concerns related to their work-based learning experience and assessment process
- Provide feedback to link areas on student evaluations of their experience
- Gather and evaluate feedback from all parties
- Where applicable, invite the employer's mentor to attend training activities at the College to ensure the employers are able to manage the assessment of students in line with Ada College policies and procedures.

## **7. Criteria for admission**

*(For apprenticeships this should include details of how the criteria will be used with employers who will be recruiting apprentices.)*

The College will require a formal application, which it will assess according to the following criteria.

- To be eligible for admission to a programme an applicant must satisfy the General Entry Requirement as follows:

Applicants must have one of the following:

- Three full A-Level Qualifications at grade C or above
- AND/OR Level 3 (QCF) BTEC National Diploma in Information Technology, or computing related courses
- Level 2 Professional qualification in a suitable computing related area.

(students can possess a combination of these qualifications if relevant)

- Additionally, students are normally required to have a grade C in GCSE Maths and English Language or to have demonstrated ability in Maths and English in further studies.
- In exceptional cases, the College may admit students who do not satisfy the above requirements, provided that they are able to demonstrate that by virtue of other studies and/or experience, they are capable of managing their studies and benefiting from the route.
- All students must be interviewed, assessed and offered a position by an employer before being admitted to the degree. Although the College may receive direct applications and filter these applications before passing them to prospective employers some apprentices may apply directly to an employer. Either way, after acceptance by an employer, the College will require a formal application, which it will assess according to the criteria.

## 8. Language of study

English

## 9. Information about non-OU standard assessment regulations (including PSRB requirements)

The college and the employer work together to support the apprentice and to carry out the end-point assessment (EPA).

The EPA is a holistic and independent assessment of the knowledge, skills and behaviours which have been learnt and developed throughout an apprenticeship standard. The EPA can only be taken after the entire duration of the apprenticeship standard for training has been completed. The end point assessment includes:

- 1) A multiple choice test
- 2) An observation of practice undertaken in the workplace (work-based project)
- 3) An evidence portfolio completed by the apprentice with an interview

In addition to the academic work that leads to the award of the Foundation degree in Digital Innovation, the apprentice will create a portfolio of evidence which will demonstrate how learning has been applied, their achievements and capabilities. It is a collection of evidence which demonstrates evidence of the skills, knowledge and behaviours an apprentice has acquired against the standard.

Towards the end of the programme, the apprentice will undertake a work-based project, which will bring together elements of their learning from different parts of the programme and show their accumulated knowledge and understanding of data analytics and its application in their organisation.

## 10. For apprenticeships in England End Point Assessment (EPA).

*(Summary of the approved assessment plan and how the academic award fits within this and the EPA)*

The EPA is by a robust panel interview, which will include a presentation on the work based project, review of portfolio evidence, and a question and answer session. This combination will fully test that the apprentice meets all the requirements of the standard. The Apprentice must 'pass' the EPA in order to gain their Level 4 Apprenticeship.

The British Computing Society (BCS), The Chartered Institute for IT carries out the end-point assessment interview. It includes a review of your portfolio, a presentation and synoptic project to make sure you've met the learning outcomes of the programme.

## 11. Information about assessment regulations

The assessment approach within the degree has been designed to ensure that students meet the skills, knowledge and behaviour outcomes as defined in the programme. A range of assessment methods will be used which are appropriate to learners who benefit from face-to-face learning opportunities as well as a good quality VLE. The Assessments have two purposes:

- To provide learners with feedback about how their work is progressing '**formative**' assessment.
- To measure and record student's achievement of modules towards the qualification '**summative**' assessment.

Given the nature and context of the module such an approach provides feedback to improve students' achievement and actively involves all students in the teaching and learning process. The module teaching team aims to provide timely and constructive feedback to students. Providing timely effective feedback can engage students in more productive learning activities and it enables better monitoring of progress of students.

The programme's formative assessment also plays a fundamental role in maintaining and enhancing learner motivation through the provision of personalised feedback, allowing the individual to reflect on their learning, clarify misconceptions, obtain a sense of the level of competencies attained, and gauge how they are progressing. This feedback will be given both orally and in a written format through the VLE.

The College will implement assessment that focuses on the pathway chosen and this will be assessed through a work-based project within the degree. The assessment processes incorporate internal moderation and external examiners to ensure independence across the degree programme and between the suggested formative and end point assessment. The remainder of this section will set out the approach to assessment, including what will be assessed, how it will be assessed and the role of the assessors, employer and apprentice in the assessment process.

### 11.1 Assessment Overview

The Individual modules will contribute formative assessment to the skills, knowledge and behaviour outcomes. Formative assessment methods will include an appropriate mix of essays, reports, practical assignments, written exams and worked-based portfolio. These will be applied to the proposed modules to assess the development of skills, knowledge and behaviours.

Practical assignments are used extensively particularly on modules that have a major programming component. This is the only realistic method for providing formative feedback to students in this area of work. Practical work is also important in modules where design is a major element, as is true in both software engineering and Multimedia and Interactive User Interface Design. Essay type assignments are used where the nature of the material lends itself to this: for example, essays may be used where a number of different techniques can be compared.

Examinations are used as a summative assessment (though we also use the marks



gained in earlier practical assignments and essays to produce final grades in each module). The grades for all modules taken at level 4-5 are combined to give the final classification. In some modules, we require students to gain at least a certain level in examinations: this is because we are aware that collusion between students can lead to less able students doing better than they could unaided in practical work. The formative assessment of individual modules will give an ongoing indication of performance against the learning outcomes defined in the programme.

## **11.2 Work-based Project Assessment**

The work-based project requires design and implementation, undertaken in the second year of the programme. The project could relate to one of the pathways in programme. High-level descriptors of typical projects are given below for each of the pathways.

### **Technical Pathway**

This could be a project to design and develop a significant piece of software or a new software product prototype to achieve defined business objectives, for a defined user group or customer group, to meet the business need and applying appropriate levels of security. It will include significant project planning including estimations of both time and cost to proposed solutions, include technical and commercial aspects of the proposed solution.

### **Creative Pathway**

This could be a project to combine skills in music software with skills in other creative software, such as computer animation, virtual worlds and computer games to investigate the process of new media development using programming. This clearly adds new dimensions to the career opportunities of graduates. Other popular combinations include creative computing and business management. As business and entertainment move increasingly online, new opportunities are opening up. Whether through computer animations on web pages, or programmed marketing in virtual worlds and computer games, the benefits of reaching customers in new ways and using new marketing strategies are growing. The combination of technical computing skills and marketing knowledge will put graduates in good stead to work in this area.

### **Entrepreneurial Pathway**

This could be a qualitative research based project on the technology entrepreneurship, pioneered in a real- life business. The research may involve taking a technology idea and finding a high-potential commercial opportunity, gathering resources such as talent and capital, figuring out how to sell and market the idea, and managing rapid growth.

## **11.3 Final Assessment and Grading**

Classification of the degree will be based on the average mark across all modules. The class of degree is determined by the programme mark as shown below.

<b>Mark</b>	<b>Class of degree</b>
70% -100%	Distinction
60% -69%	Merit
40% - 59%	Pass

## **12. Methods for evaluating and improving the quality and standards of teaching and learning.**

The college has a comprehensive quality assurance programme that monitors all programmes through programme review, achievement of performance indicators and observation of teaching and learning. This is also representation and input from employers who will contribute to curriculum development and review. In this provision all module guides are internally verified to ensure that all learning outcomes and grading criteria are met. This programme is externally monitored by external examiners who advise on academic standards and ensure that all learning objectives have been met.

### **12.1 External Examiner**

The role of external examiner is to assure the quality of students' learning experience and ensure that they are assessed fairly in relation to other students on the same programme and to all students across the College and nationally. External examiner's reports are an integral part of the College quality assurance processes. They form part of the requirements for programme annual review and the programme team must demonstrate how they have responded to the views and comments made by external examiner.

### **12.2 Indicators of Quality and Standards**

#### Annual Review

The programme will undergo a Programme Annual Review in line with the College processes.

#### Student feedback

The Programme Team will employ a variety of methods to gain feedback from students on their course, including:

- Two annual student surveys - 'First term' and 'On Exit'
- Completion of the National Student Survey (NSS) for final year students
- Individual on-line module evaluations
- Teaching and Learning (T&L) Committee will be held twice a year to facilitate the sharing of good practice and initiatives from internal and external developments.
- T&L committee will consist of the Dean, the Programme Director, members of teaching staff and students' representatives for each cohort.
- On-line Student forums

#### Progress indicators

The progress indicators are considered on an annual basis and typically include:

- Student evaluation questionnaires. These are completed by students during in the first term and at the end of the year and (with the NSS) in their second year.
- Module evaluations which determine the students view on the quality of the modules they have studied.
- Independent internal and external reviews including QAA.
- Reviews by external examiners who comment on levels of achievement. compared with standards elsewhere.
- Internal progression rates, completion rates, student success indicators.

13. Changes made to the programme since last (re)validation
N/A

Annexe 1: List of Modules

Annexe 2: Curriculum map

Annexe 3: Benchmark Statements (Foundation Degree) Computing (July 2015)

Annexe 4: Benchmark Analysis (Benchmark- Outcomes Matrix)

Annexe 5: Level 4 Apprenticeship Standards for Software Developer

Annexe 6 : Curriculum mapping against the apprenticeship standard

Annexe 7: Notes on completing programme specification templates

### Annexe 1: Modules List

Year	Status	No.	Module code	Module Title	Credit Value
YEAR ONE	CORE	1	ADXXX	Computer Programming	20
		2	ADXXX	System Development Life Cycle (SDLC)	20
		3	ADXXX	Database Systems	20
		4	ADXXX	Data Structure & Algorithms	20
		5	ADXXX	Testing –Integration & automated	20
		6	ADXXX	Ethics & Commercial Reasoning	20
YEAR TWO	CORE	8	ADXXX	Advanced Programming	20
		9	ADXXX	Interactive User Interface Design	20
		10	ADXXX	Data Analytics & Business Insights	20
		11	ADXXX	Worked-Based Project	20
	Technical Pathway	12	ADXXX	Distributed Systems	20
		13	ADXXX	Artificial Intelligence	20
	Creative Pathway	14	ADXXX	Mobile app. Development	20
		15	ADXXX	Web Design & Authoring	20
	Entrepreneurial Pathway	16	ADXXX	Entrepreneurship and Innovation	20
		17	ADXXX	Business Risk Analysis	20

## Annexe 2: Curriculum-Learning Outcome Map

*D= programme outcome is **developed** in this module*

*A = programme outcome, or aspects of the programme outcome, are assessed on this module*

### LEVEL 4:

Outcomes		Knowledge and Understanding				Cognitive/Intellectual Skills				Practical/Professional Skills				Key Transferable Skills		
Year	Module	A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	D1	D2	D3
YEAR ONE	Computer Programming	DA				DA	DA	D	D	DA		D			D	
	System Development Life Cycle (SDLC)	D		DA	D		DA	DA	D		DA		D	DA	A	DA
	Database Systems	D	DA				DA	DA	D		DA	A		D	DA	
	Data Structure & Algorithms	DA					DA					DA			A	
	Testing –Integration & automated	DA	DA	D				DA		A	A	A	DA	DA	A	
	Ethics & Commercial Reasoning				DA				DA				D			D

## LEVEL 5:

Outcomes			Knowledge and Understanding				Cognitive/Intellectual Skills				Practical/Professional Skills				Key Transferable Skills		
Year	Module		A5	A6	A7	A8	B5	B6	B7	B8	C5	C6	C7	C8	D4	D5	D6
YEAR TWO	CORE	Advanced Programming	DA	A			DA	A			DA		A				
		Interactive User Interface Design		D	DA		DA	A		D			A		DA	D	
		Data Analytics & Business Insights				D		DA		DA		D	DA	D		D	DA
		Worked-Based Project	D	D		A	DA	DA	D	DA	DA	DA		DA	D	DA	DA
	Technical Pathway	Distributed Systems		DA					DA				DA				
		Artificial Intelligence		DA		DA		DA					D				
	Creative Pathway	Web Design & Authoring		DA	DA	DA		DA	DA	D		D	DA			D	
		Mobile app. Development		DA	DA	DA		DA	DA	D	DA	D		D		D	
	Entrepreneurial Pathway	Business Risk Analysis		DA						D		DA		DA			DA
		Entrepreneurship and Innovation				DA		DA					D			DA	DA

### **Annexe 3: Foundation Degree Benchmark Statements (July 2015)**

**Fd1** - Knowledge and critical understanding of the well-established principles in their field of study and the way in which those principles have developed.

**Fd2** - Successful application in the workplace of the range of knowledge and skills learnt throughout

**Fd3** - Ability to apply underlying concepts and principles outside the context in which they were first studied, and the application of those principles in a work context.

**Fd4** - Knowledge of the main methods of enquiry in their subject(s), and ability to evaluate critically the appropriateness of different approaches to solving problems in their field of study and apply these in a work context.

**Fd5** - An understanding of the limits of their knowledge, and how this influences analyses and interpretations based on that knowledge in their field of study and in a work context.

**Fd6** - Use a range of established techniques to initiate and undertake critical analysis of information, and to propose solutions to problems arising from that analysis in their field of study and in a work context.

**Fd7** - Effectively communicate information, arguments, and analysis, in a variety of forms, to specialist and non-specialist audiences, and deploy key techniques of the discipline effectively in their field of study and in a work context.

**Fd8** - Undertake further training, develop existing skills, and acquire new competences that will enable them to assume responsibility within organisations.

**Fd9** - Qualities and transferable skills necessary for employment and progression to other qualifications requiring the exercise of personal responsibility and decision-making.

**Fd10** - The ability to utilise opportunities for lifelong learning.

#### Annexe 4: Benchmark Analysis (Benchmark- Outcomes Matrix)

Programme Outcomes	Benchmark Statements									
Knowledge and understanding	Fd1	Fd2	Fd3	Fd4	Fd5	Fd6	Fd7	Fd8	Fd9	Fd10
A1	X									
A2										
A3										
A4	X									
A5										
A6	X									
A7										
A8	X									
Cognitive/Intellectual Skills										
B1				X						
B2		X								
B3										
B4							X			
B5				X						
B6			X							
B7				X		X				
B8		X								
Practical/Professional Skills										
C1										
C2						X				
C3					X					
C4			X	X	X			X		
Practical/Professional Skills	Fd1	Fd2	Fd3	Fd4	Fd5	Fd6	Fd7	Fd8	Fd9	Fd10



C5										
C6		X		X						
C7					X	X				
C8						X	X			
<b>Key Transferable Skills</b>										
D1										
D2								X		X
D3		X			X					
D4									X	
D5									X	
D6									X	X

## **Annexe 5: Level 4 Apprenticeship Standards for Software Developer**

### **Standards:**

#### **Technical Skills (S)**

S1: Logic: writes good quality code (logic) with sound syntax in at least one language

S2: User interface: can develop effective user interfaces for at least one channel

S3: Data: can effectively link code to the database/data sets

S4: Test: can test code and analyse results to correct errors found using either V-model manual testing and/or using unit testing

S5: Problem solving: can apply structured techniques to problem solving, can debug code and can understand the structure of programmes in order to identify and resolve issues

S6: Design: can create simple data models and software designs to effectively communicate understanding of the program, following best practices and standards

S7: Analysis: can understand and create basic analysis artefacts, such as user cases and/or user stories

S8: Deployment: can understand and utilise skills to build, manage and deploy code into enterprise environments

S9: Development lifecycle: can operate at all stages of the software development lifecycle, with increasing breadth and depth over time with initial focus on build and test.

S10: Can apply good practice approaches according to the relevant paradigm (for example object oriented, event driven or procedural)

S11: Can interpret and follow:

- software designs and functional/technical specifications
- company defined 'coding standards' or industry good practice for coding
- testing frameworks and methodologies – company, team or client approaches to continuous integration, version and source control

S12: Can respond to the business environment and business issues related to software development

S13: Can operate effectively in their own business's, their customers' and the industry's environments

S14: Can apply the maths required to be a software developer (e.g. algorithms, logic and data structures)

### **Technical Knowledge and Understanding (K)**

- K1: Understands and operates at all stages of the software development lifecycle
- K2: Understands the similarities and differences (taking into account positives and negatives of both approaches) between agile and waterfall software development methodologies
- K3: Understands how teams work effectively to produce software and contributes appropriately
- K4: Understands and applies software design approaches and patterns and can interpret and implement a given design, compliant with security and maintainability requirements
- K5: Understands and responds to the business environment and business issues related to software development
- K6: Understands and applies the maths required to be a software developer (eg algorithms, logic and data structures)

### **Underpinning Skills, Attitudes and Behaviours (B)**

- B1: Logical and creative thinking skills
- B2: Analytical and problem solving skills
- B3: Ability to work independently and to take responsibility
- B4: Can use own initiative
- B5: A thorough and organised approach
- B6: Ability to work with a range of internal and external people
- B7: Ability to communicate effectively in a variety of situations
- B8: Maintain productive, professional and secure working environment

## Annexe 6 : Curriculum mapping against the apprenticeship standard

Standards →		Core Skills (S)														Core Knowledge (K)						Core Behavioural Skills (B)							
Yr1	Module	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	S13	S14	K1	K2	K3	K4	K5	K6	B1	B2	B3	B4	B5	B6	B7	B8
Core	Computer Programming	✓				✓	✓			✓	✓					✓			✓			✓							
	System Development Life Cycle (SDLC)		✓				✓	✓		✓		✓				✓	✓	✓	✓			✓	✓			✓	✓	✓	
	Database Systems	✓		✓			✓											✓					✓						
	Data Structure & Algorithms					✓	✓		✓						✓						✓	✓	✓						
	Testing –Integration & automation				✓	✓						✓						✓		✓			✓						
	Ethics & Commercial Reasoning																			✓						✓			✓

Standards →		Core Skills (S)														Core Knowledge (K)						Core Behavioural Skills (B)							
Yr 2	Module	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	S13	S14	K1	K2	K3	K4	K5	K6	B1	B2	B3	B4	B5	B6	B7	B8
Core	Advanced Programming	✓	✓			✓	✓			✓	✓					✓			✓			✓							
	Interactive User Interface Design		✓				✓	✓	✓		✓									✓					✓				
	Data Analytics & Business Insights			✓		✓							✓	✓						✓					✓				✓
	Worked-Based Project					✓				✓	✓			✓					✓	✓					✓	✓	✓	✓	
Technical Pathway	Distributed Systems					✓						✓								✓									
	Artificial Intelligence					✓			✓			✓								✓									
Creative Pathway	Web Design & Authoring		✓						✓											✓									
	Mobile app. Development		✓						✓		✓	✓								✓									
Entrepreneurial Pathway	Business Risk Analysis												✓	✓															
	Entrepreneurship and Innovation																				✓				✓				

### Annexe 7: Notes on completing programme specification templates

- 1 - This programme specification should be aligned with the learning outcomes detailed in module specifications.
- 2 – The expectations regarding student achievement and attributes described by the learning outcome in section 3 must be appropriate to the level of the award within the **QAA frameworks for HE qualifications**: <http://www.qaa.ac.uk/AssuringStandardsAndQuality/Pages/default.aspx>
- 3 – Learning outcomes must also reflect the detailed statements of graduate attributes set out in **QAA subject benchmark statements** that are relevant to the programme/award: <http://www.qaa.ac.uk/AssuringStandardsAndQuality/subject-guidance/Pages/Subject-benchmark-statements.aspx>
- 4 – In section 3, the learning and teaching methods deployed should enable the achievement of the full range of intended learning outcomes. Similarly, the choice of assessment methods in section 3 should enable students to demonstrate the achievement of related learning outcomes. Overall, assessment should cover the full range of learning outcomes.
- 5 - Where the programme contains validated **exit awards** (e.g. CertHE, DipHE, PGDip), learning outcomes must be clearly specified for each award.
- 6 - For programmes with distinctive study **routes or pathways** the specific rationale and learning outcomes for each route must be provided.
- 7 – Validated programmes delivered in **languages other than English** must have programme specifications both in English and the language of delivery.