



# **BSc (Hons) Computing Programme Handbook**

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## **Introduction to the Programme**

Welcome to the BSc (Hons) Computing degree programme.

The programme and themed routes are made up of the core modules listed below which are studied across levels four, five and six.

Each 20-credit module is equivalent to 200 hours of self-guided learning.

## Core Modules

	Module	Credits	BSc (Hons) Computing	BSc (Hons) Computing (Information Management)	BSc (Hons) Computing (Mobile Computing)
Level 4	Professional Development	20	x	x	x
	Computer Technology	20	x	x	x
	Website Design	20	x	x	x
	Database Design	20	x	x	x
	Software Engineering	20	x	x	x
	Information Systems in Organisations	20	x	x	x
Level 5	Data Communications	20	x	x	x
	Systems Analysis & Design	20	x	x	x
	Programming	20	x	x	x
	Quality Systems in IT	20	x	x	x
	Database Implementation	20	x	x	x
	Dynamic Website Development	20	x		
	Mobile Technologies	20			x
	Strategic Information Systems	20		x	

	<b>Module</b>	<b>Credits</b>	<b>BSc (Hons) Computing</b>	<b>BSc (Hons) Computing (Information Management)</b>	<b>BSc (Hons) Computing (Mobile Computing)</b>
<b>Level 6</b>	Management in IT	20	x	x	x
	Current Trends in Networking	20	x	x	x
	Computer Systems Security	20	x	x	x
	e-Commerce Systems	20	x		
	Mobile Implementations	20			x
	Advanced Database Concepts	20		x	
	Computing Project	40	x	x	x

Please note that modules may not be delivered in this order.

## **Programme Specifications**

<b>1. Target Award</b>	BSc (Hons)
<b>2. Programme Title</b>	BSc (Hons) Computing
<b>3. Exit Awards</b>	Certificate of Higher Education in Computing (120 credits) Diploma of Higher Education in Computing (240 credits) BSc Computing (300 credits)
<b>4. Programme Leader(s)</b>	Mohammed Rehman
<b>5. Delivery Model</b>	Online Blended Delivery
<b>6. Start date</b>	October 2016
<b>7. Programme Accredited by</b> <i>(PSRB or other, if applicable)</i>	
<b>8. UCAS Code</b> <i>(If applicable)</i>	
<b>9. Relevant QAA subject benchmark statement</b>	Computing (2016)

<b>10. Programme Aims</b>
<p>The BSc Computing programme is designed to enable students to achieve an undergraduate honours degree in Computing by undertaking a rigorous study of theories, techniques and issues and acquiring the practical skills that are essential within the changing environment such that they can pursue related careers or further relevant academic study.</p> <p>The programme is designed to provide opportunities for students to develop their knowledge and skills in computing in a flexible way. Learning materials have been developed which allow students to maximise the time they have available for study and the programme delivery provides additional support through either on-line or structured tutor lead sessions. The curriculum provides a broad-based experience exposing the learner to a range of relevant aspects of computing in a progressive way.</p> <p>More specifically the programme will:</p> <ul style="list-style-type: none"> <li>• Allow students to develop professional level skills and understanding across a range of computing disciplines.</li> <li>• Develop independence in learning and encourage a commitment to lifelong learning.</li> <li>• Encourage students to adopt problem-solving attitudes to their work.</li> <li>• Provide opportunities for students to consider ethical issues relating to computing.</li> <li>• Promote understanding of the key aspects of current practice in the field of computing while acknowledging current and emerging developments in related disciplines.</li> <li>• Equip students with the essential skills and tools to work professionally in a computing situation and to be creative and professional practitioners when working independently and when collaborating with others as part of multidisciplinary teams.</li> <li>• Enable students to communicate effectively through a variety of media and presentational forms to specialist and non-specialist audiences.</li> <li>• Give students an appreciation of the continuing developments in computing and equip them to keep up to date with these developments.</li> <li>• Provide a stimulating <i>online</i> academic environment in which students can develop confidence as practitioners and as individuals who are part of a highly engaged community of learners and thereby to inspire students to become lifelong learners.</li> <li>• Enable students to work at an appropriate level in the development of web-based solutions.</li> <li>• Develop independence in learning and encourage a commitment to lifelong learning.</li> </ul>

**11. Intended learning outcomes and the means by which they are achieved and demonstrated**

**11a. Knowledge and understanding**

A01 - Design, develop and evaluate web-based solutions using up to date tools and technologies.

A02 - Identify, explain and evaluate current and evolving trends, technologies and methodologies within Computing.

A03 - Systematically appraise relevant principles, theories and methodologies of systems design.

A04 - Critically evaluate relevant computer technologies to meet requirements in a range of novel or complex contexts.

A05 - Critically review current computer systems in light of recent developments in the field

Acquisition of knowledge and understanding (A1 – A5) at all levels is through a combination of online tutorials, group discussions and independent and directed study, supported throughout by comprehensive online teaching materials and broader resources. We achieve this through a pedagogy that includes assignment work, group forums and project-based activities.

**11b. Intellectual (thinking), practical, affective and transferable skills**

B01 - Identify issues and formulate appropriate methods of investigation and evaluation.

B02 - Select and synthesise information from a variety of sources and utilise judgement to draw appropriate conclusions and make recommendations.

B03 - Utilise problem solving skills in order to create solutions to novel or complex problems in a variety of theoretical and practical situations.

B04 - Apply appropriate theoretical concepts and practical techniques in social, environmental and ethical issues to the solution of complex problems.

B05 - Synthesise and apply methodologies, techniques, tools and technologies from a range of fields within computing to provide complete solutions to novel or complex problems.

Intellectual skills (B1 – B5) are developed throughout the programme by the methods and strategies outlined in section 11a, above.

C01 - Select and use appropriate combinations of hardware and software in order to create innovative solutions to a variety of theoretical and practical problems.

C02 - Select and apply appropriate methodologies and tools in the design of computer systems.

C03 - Plan, design, develop and evaluate innovative computer-based solutions to a range of novel or complex problems using up to date tools and technologies.

C04 - Articulate reasoned technical and ethical evidence to justify solutions.

C05 - Demonstrate flexibility in adapting best practice solutions to different contexts.

C06 - Formulate research questions, deploy appropriate research methodologies and data collection methods and evaluate research findings examining practical, ethical and theoretical constraints.

Practical and professional skills (C1-C6) are employed in the production of solutions to real life situations developed through set scenarios, exercises and practical activities.

D01 - Communicate effectively through appropriate media.

D02 - Critically evaluate information sources including academic sources, manufacturer information and Internet sources.

D03 - Work effectively on their own and demonstrate understanding of being part of a team, taking personal responsibility for their own efforts and outputs.

D04 - Manage time effectively by learning to plan and prioritise work in order to meet specified deadlines.

D05 - Learn independently in the spirit of critical and self-reflective enquiry.

D06 - Develop interpersonal skills of effective listening, negotiating, persuasion and presentation.

Transferable skills (D1 – D6) are developed throughout the programme. The skills of communication, critical use of source material including the Internet, and self-management (D1, D2, D3 and D4) are integral to coursework at all levels. Personal responsibility (D3, D4) becomes an increasingly important skill as students progress, culminating in the final year project. As work becomes more complex at levels 5 and 6, students are tested on their abilities to respond positively to feedback from a variety of audiences, as well as to manage increasingly large workloads (D4, D5). Students are required to complete a number of assignments and a Computing Project in level 6 that reward independence, originality and critical enquiry, and which further enhances their communication and self-reflective skills. (D1 – D6)



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

E01 - **Discipline Expertise:** Knowledge and understanding of Computing. 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.

E02 - **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.

E03 - **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.

E04 - **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.

E05 - **Reflective Practitioner:** Undertake critical analysis and reach reasoned and evidenced decisions, contribute problem-solving skills to find and innovate in solutions.

E06 - **Lifelong Learning:** Manage employability, utilising the skills of personal development and planning in different contexts to contribute to society and the workplace.

## 13. Learning and teaching methods and strategies

Learning and teaching methods and strategies are delivered through a blended and integrated learning and teaching pedagogy that includes both asynchronous and synchronous activity. That is:

### 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 VOIP's where theory and practice are integrated.
- Lectures, seminars & tutorials both online and via classroom based input

Based upon the variety of student undertaking our programmes and our wishes to provide equal opportunity for engagement no matter what their preferred method of learning styles of the student, our strategy has been designed to enable 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.

There is a requirement for written work at all levels including reports, essays, practical tasks, developed plans, timed examinations, 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.

## 14. Assessment methods and strategies

Intellectual skills are assessed through a combination of in-course formative exercises and summative assignments, including the submission of portfolios of work, complete design documentation and computer based artefacts that demonstrate the skills required.

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 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.

To develop transferable skills all assignments must meet time deadlines. 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. All assessed work is expected to be presented in appropriate formats with structures and language that meets the needs of the intended audience. These guides are shared with students.

### **15. Employability**

Virtually all online students on this programme are in employment. There are, however, an increasing number of younger undergraduate students joining the programme, many of whom may be in part time work. Blended students are more likely to have part time work and it is therefore important that there is support given to all students as regards career progression. In the first instance, as well as the subject knowledge and skills covered by the programme, this is achieved by the emphasis on transferrable skills across the programme that also allows students to develop a portfolio of evidence indicating how they have demonstrated a range of skills in different settings.

A University of Glasgow Report, 'Employers Perceptions of the Employability Skills of New Graduates' (2011)<sup>1</sup> identified commonly accepted desirable attributes of graduates:

- Team working (D3)
- Problem solving (B1-B5, C1-C3)
- Self-management (D3, D4)
- Knowledge of the subject (A1-A5)
- Literacy and numeracy relevant to the post (D1)
- ICT knowledge
- Good interpersonal and communication skills (C4, D1, D3)
- Ability to use own initiative but also to follow instructions (C5, D3, D4)
- Leadership skills (where necessary)

These attributes have been mapped against the Programme Learning Outcomes above and, of course, are reflective of the Graduate Attributes (E1-E6). The inclusion of the Arden values also provides students with the opportunity to develop a series of behaviours that are valued by employers and which will be evidenced through formative and summative assessment.

Arden University also uses the Abintegro platform to provide careers support. This allows a broad range of online tools to be made available to students including recorded sessions, a cv builder, simulated interviews and synchronous sessions on aspects of careers. Arden does not currently have a dedicated careers advisor but such an appointment is under consideration to support blended students.

### **16. Entry Requirements**

- Two Subjects at GCE A level or equivalent, plus passes at grade C or above in three subjects at GCSE level or equivalent; or

<sup>1</sup> [http://www.edge.co.uk/media/63412/employability\\_skills\\_as\\_pdf\\_-\\_final\\_online\\_version.pdf](http://www.edge.co.uk/media/63412/employability_skills_as_pdf_-_final_online_version.pdf)

- Completion of a recognised Access Programme or equivalent.
  - IELTS 6.0 (no less than 5.5 in any element) or equivalent for those students whose medium of prior learning was not 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.

Exemptions may be granted in respect of other qualifications subject to Arden's APCL regulations.

## 17. Programme Structure

### Level 4

Module Code	Module Title	Credits	Module Type (Core/Option)	Assessment Method
HRM4004	Professional Development	20	Core	Portfolio
COM4001	Computer Technology	20	Core	Exam
COM4002	Website Design	20	Core	Design Specification Task
COM4003	Database Design	20	Core	Design Specification Task
COM4004	Software Engineering	20	Core	Portfolio of Tasks
COM4005	Information Systems in Organisations	20	Core	Case Study Assessment

### Level 5

Module Code	Module Title	Credits	Module Type (Core/Option)	Assessment Method
COM5001	Data Communications	20	Core	Case Study Assessment
COM5002	Systems Analysis & Design	20	Core	Case Study Assessment
COM5003	Programming	20	Core	Portfolio of Tasks
COM5004	Quality Systems in IT	20	Core	Case Study Assessment
COM5005	Database Implementation	20	Core	Design Specification Task
COM5006	Dynamic Website Development	20	Core	Design Specification Task

### Level 6

Module Code	Module Title	Credits	Module Type (Core/Option)	Assessment Method
COM6001	Management in IT	20	Core	Business Plan
COM6002	Current Trends in Networking	20	Core	Case Study Assessment
COM6003	Computer Systems Security	20	Core	Case Study
COM6004	e-Commerce Systems	20	Core	Case Study Assignment
RES6002	Computing Project	40	Core	Assignment 1 Project Proposal, and Assignment 2 Project Report & Artefact

### 18. Subject:

**Select from:**

<https://www.hesa.ac.uk/component/content/article?id=1787>

### Annex – Mapping of Programme Learning Outcomes and Modules

Programme Learning Outcomes		Module Type (Compulsory (C) or Option (O))	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	C1	C2	C3	C4	C5	C6	D1	D2	D3	D4	D5	D6	
			Modules																						
Level 4	Professional Development	C							Y	Y					Y		Y		Y		Y	Y	Y		
	Computer Technology	C		Y		Y			Y	Y		Y	Y	Y	Y				Y	Y	Y	Y	Y		
	Website Design	C	Y	Y						Y	Y	Y	Y	Y					Y		Y	Y	Y		
	Database Design	C	Y	Y	Y						Y	Y		Y	Y					Y		Y	Y	Y	
	Software Engineering	C		Y	Y		Y	Y			Y		Y		Y			Y		Y	Y	Y	Y	Y	
	Information Systems in Organisations	C						Y			Y		Y		Y	Y		Y		Y	Y	Y	Y	Y	
Level 5	Data Communications	C		Y		Y	Y		Y	Y		Y			Y	Y			Y	Y	Y	Y	Y		
	Systems Analysis & Design	C	Y	Y	Y		Y	Y	Y	Y	Y	Y		Y	Y	Y			Y		Y	Y	Y		
	Programming	C			Y					Y	Y			Y	Y				Y		Y	Y	Y		
	Quality Systems in IT	C						Y		Y		Y			Y	Y	Y		Y	Y	Y	Y	Y		
	Database Implementation	C	Y	Y				Y		Y	Y			Y	Y				Y		Y	Y	Y		
	Dynamic Website Development	C	Y	Y				Y	Y	Y	Y			Y	Y				Y		Y	Y	Y		
Level 6	Management in IT	C													Y	Y			Y	Y	Y	Y	Y		
	Current Trends in Networking	C		Y		Y	Y		Y	Y	Y				Y	Y	Y		Y	Y	Y	Y	Y		
	Computer Systems Security	C		Y		Y	Y	Y	Y				Y	Y	Y	Y	Y		Y	Y	Y	Y	Y		
	e-Commerce Systems	C	Y	Y	Y			Y	Y	Y	Y	Y	Y		Y				Y	Y	Y	Y	Y		
	Computing Project	C	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	