GCU

Glasgow Caledonian University

PROGRAMME SPECIFICATION

for the

BSc/BSc (Hons) Software Development for Business Programme

September 2021

GLASGOW CALEDONIAN UNIVERSITY

Programme Specification Pro-forma (PSP)

1. GENERAL INFORMATION

1.	**Programme Title:**	BSc / BSc (Hons) Software Development for Business
2.	**Final Award:**	BSc, BSc (Sandwich), BSc (Hons), BSc (Hons) (Sandwich)
3.	**Exit Awards:**	University Certificate in Computing, University Diploma in Computing
4.	**Awarding Body:**	Glasgow Caledonian University
5.	**Approval Date:**	November 2018
6.	**School:**	School of Computing, Engineering and Built Environment
7.	**Host Division/Dept:**	Department of Computing
8.	**UCAS Code:**	7U8K
9.	**PSB Involvement:**	British Computer Society (BCS)
10.	**Place of Delivery:**	Glasgow City Campus
11.	**Subject Benchmark Statement:**	Computing
12.	**Dates of PSP preparation/revision:**	Sep 2021

2. EDUCATIONAL AIMS OF THE PROGRAMME

The BSc/BSc (Hons) Software Development for Business (SDfB) programme has been developed to provide students with the knowledge, understanding and skills needed to become effective Software Development professionals capable of working on the development of the software systems required by modern businesses.

In the UK, software professional roles are the fastest-growing in the ICT sector. This has led to an increased demand for employable and productive software engineering graduates[1]. The programme development team has worked closely with The Tech Partnership (formerly e-skills UK), the Sector Skills Council for Business and Information Technology, and top graduate employers to ensure the learning outcomes of this programme meet the competencies required by the ICT industry.

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[1] Tech Partnership, Fact Sheet: Demand for Digital Specialists, https://www.thetechpartnership.com/globalassets/pdfs/research-2016/factsheet_demandfordigitalspecialists_july16.pdf

The number of applications to the previous versions of the Department of Computing programmes at GCU has steadily increased over the past few years.

This programme distinguishes itself from similar programmes offered elsewhere in two ways:

(i)   At the time of validation the SDfB programme at GCU was be the only Software Development for Business programme in Scotland accredited by The Tech Partnership (formerly e-skills UK).

(ii)   Over the past 5 to 10 years the computing industry has experienced a "once every 20–25 years" shift to a new computing technology platform, bringing growth and innovation, which has been called the "Third Platform". The Third Platform has at its core the four pillars of Big Data & Analytics, Cloud (evolving to Cloud 2.0), Mobile Computing and Social Technologies which come together and create opportunities for innovation. It is estimated that by 2020 over 40% of the ICT industry's revenue and 98% of its growth will be driven by Third Platform technologies[2]. The Software Development for Business programme is aligned with this "Third Platform" since it incorporates in its programme outcomes coverage of the four pillars.

The broad educational aims of this programme are:

- To provide students with a specific understanding of the theories, concepts, processes, methods and tools used for software development, and their application to the development of solutions that have real business value.
- To provide students with expert knowledge of the entire software development life cycle.
- To equip students with a range of theoretical and practical skills relevant to the task of developing and evaluating robust software solutions to real world problems.
- To enable students to develop a cultural understanding of the context of software applications.
- To equip students with the ability to work as an individual and as part of a team to develop and deliver quality software solutions.
- To enable students to acquire good analytical, synthesis and communication skills.
- To enable students to take responsibility for their own learning as they progress through the programme.
- To assist the student in developing the skills required in adapting to changing technological and organisational developments and learning new skills.
- To provide education and training which is accredited by the BCS and The Tech Partnership (formerly e-skills UK).

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[2] The 3rd Platform is Evolving, https://www.idc.com/promo/thirdplatform

Expected Levels of Attainment

- On successful completion of level 1 a student should have a basic knowledge of the software and hardware concepts which underpin modern computing systems.

- On successful completion of level 2 a student should have a sound knowledge of software design and development and show competence in applying this to a range of software development domains.

- On successful completion of level 3 a student should be able to plan, specify, design, implement and support components of a software system in response to a business need in accordance with fundamental principles and methods, using appropriate techniques and tools.

- On successful completion of level H a student will, in addition, be able to critically evaluate alternative approaches to software solutions and be able to use advanced knowledge and techniques in the construction of a software solution.

3. **INTENDED LEARNING OUTCOMES –** *the programme provides opportunities for students to develop and demonstrate knowledge and understanding, skills, qualities and other attributes in the following areas*

The development of this programme has been informed by:

- The Quality Assurance Agency for Higher Education (QAA) Subject Benchmark Statement for Computing

- The Association of Computing Machinery (ACM) Curricula Recommendations[3] for Computer Science (2013), Information Systems (2010), Information Technology (2017), Cybersecurity (2017) and Software Engineering (2014)

- The British Computer Society (BCS) Core Requirements for Accreditation of Honours Programmes

- The Degree Competency Outcomes for Software Development for Business developed by The Tech Partnership (formerly e-skills UK).

- The School of Computing, Engineering and Built Environment research in the areas of:
    - Networks and Communications,
    - Distributed and Pervasive Systems Initiative,
    - Interactive and Trustworthy Technologies,
    - Visual, Affective and Pervasive Systems and
    - Computer Science Education.

- The School of Computing, Engineering and Built Environment Knowledge Transfer and Lifelong Learning programmes

- Glasgow Caledonian University's Strategy for Learning (SfL)

- The School of Computing, Engineering and Built Environment Learning, Teaching and Assessment Strategy (LTAS).

3A **Knowledge and Understanding:**

A1 Explain the theoretical and practical aspects of software and hardware that underpin modern computer systems.

A2 Demonstrate knowledge and understanding of facts, concepts, principles and theories relating to software development.

A3 Utilize and appraise tools and techniques to assist in the development of software systems.

A4 Demonstrate an understanding of methods used to specify, model, develop, deploy and maintain software systems in an operational context.

A5 Demonstrate an awareness of the role of the IT professional and the context in which they operate including moral, legal, safety and ethical issues.

A6 Demonstrate an understanding and appreciation of the importance of negotiation, effective work habits, leadership, and good communication with stakeholders.

A7 Demonstrate an understanding of the advanced technologies and the techniques required in the development of complex software systems.

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[3] https://www.acm.org/education/curricula-recommendations

3B   Intellectual Skills:

B1   Identify, analyse and solve practical problems.

B2   Plan, conduct and report upon work.

B3   Evaluate alternative solutions to problems in an appropriate subject domain.

B4   Critically evaluate work undertaken by themselves and others.

B5   Gather and evaluate research information from a variety of sources.

3C   Professional/ Practical Skills:

C1   Undertake the analysis, design, implementation and testing of computer systems across a variety of application domains.

C2   Demonstrate effective use of a variety of appropriate techniques, tools and integrated development environments in the development and deployment of computer based information systems.

C3   Use appropriate methods and techniques to specify, develop and deploy software systems and services.

C4   Demonstrate competence in using processes and organisational working practices to manage IT projects within an operational context.

C5   Apply theory to practical and realistic career-related tasks.

3D   Transferable/Key Skills:

D1   Specialist knowledge and application

D2   Critical thinking and problem solving

D3   Critical analysis

D4   Communication skills, written, oral and listening

D5   Numeracy

D6   Effective information retrieval and research skills

D7   Computer literacy

D8   Self-confidence, self-discipline & self-reliance (independent working)

D9   Awareness of strengths and weaknesses

D10   Creativity, innovation & independent thinking

D11   Knowledge of international affairs

D12   Appreciating and desiring the need for continuing professional development

D13   Reliability, integrity, honesty and ethical awareness

D14   Entrepreneurial independence and risk-taking

D15   Ability to prioritise tasks and time management

D16   Interpersonal skills, team working and leadership

D17   Presentation skills

D18   Commercial awareness

3E Additional Industrial Placement Skills

The programme has an optional one year credit-rated placement period in related employment which provides the opportunity for further development of the taught practical, personal and professional skills in a work-based environment

E1 Gain additional competence in the application of the knowledge and practical skills obtained on this programme.

E2 Develop an understanding of the practical considerations that constrain the application of theory in the workplace.

E3 Communicate and interact effectively in a work-based environment.

E4 Evaluate current research and technology concepts and their relationship and application to a work-based problem.

Strategy for Learning

The Learning, Teaching and Assessment Strategy (LTAS) for this programme has been informed by and is in line with the GCU Strategy for Learning.

The teaching approach is student centred, practical and participative and has been designed to move away from the traditional teacher centred paradigm to a more active, student driven, independent model of learning.

Students are encouraged to take a broad view of their education and to participate in competitions, meet with employers, attend lectures by external speakers and participate in employer led events as well as attending scheduled classes, using online resources and undertaking independent study.

A range of delivery methods are used on the programme including: lectures; group-based tutorials and seminars (both tutor and student led); group based practical computing labs (supervised and directed); problem based learning scenarios and case studies; directed study; coursework assignments (individual and group-based) and supervised projects (in all programme levels).

GCU's Strategy for Learning (SfL) is underpinned by a model comprised of eight design principles. This programme embeds these principles in the following ways:

Engaged learning:

- The programme has a project module each year.
- The integrated projects in years 1-3 are group based encouraging team working. In addition the integrated project module in year 3 requires students to work in interdisciplinary teams.
- A range of effective and accessible forms of academic support, including personal tutors and academic development tutors are available to students on the programme.
- Students have been involved in the course development process and will continue to be involved in the development of the programme.
- Students are encouraged to broaden their range of skills, knowledge and strengths by participating in external competitions and events and to apply these experiences to their studies.

Divergent thinking:

- Project modules in each year provide the opportunity for students to engage with open ended problems and projects.

- Students are encouraged to use collaboration tools to aid learning. The tools used include both Web 2.0 collaboration tools such as social media, blogging, wiki and GCULearn together with industry standard versioning tools such as GitHub.

Flexible, inclusive and Accessible:

- Modules have been written with reference to GCU LEAD's Flexible, Accessible and Inclusive Curriculum and so use a blended-learning approach which is accessible to all students. They incorporate 'real-life' scenarios where possible, make extensive use of problem-based and project-based work , use a variety of individual, group learning, face-to-face and/or virtual methods of delivery and incorporate materials in a variety of formats to cater for different learning styles.

- Online Managing Diversity courses will be made available to students through the GCULearn portal.

- Learning technology is recognised as being central to implementing the GCU Strategy for Learning. By combining classroom-based approaches with technology-enhanced learning the programme aims to help students develop the independent and lifelong learning skills which are essential for success in the workplace and throughout life. Members of the programme team have high levels of technical competence and are additionally supported by the school's learning technologists which has enabled them to embed blended and online learning across the curriculum. GCULearn is used to provide materials in different formats to engage with different learning styles e.g. video tutorials, e-books, podcasts.

- Several modules make use of social media tools, Blogs and Wikis.

- The programme also provides flexible learning by allowing students to transfer between the Department of Computing programmes in the early years.

- The programme provides as many elective choices, both within the department and also in other schools in the University, as is possible within the constraints placed on it by accrediting bodies.

Broad and deep learning:

- Integrated project modules provide opportunities for multi- and inter- disciplinary group working.

- The integrated project modules have been designed to develop team building and team working skills, as well as to encourage the use of reflective practices.

- The later years of the integrated project modules also incorporate peer assessment.

- The importance of timely, high quality and constructive formative feedback in a variety of forms is recognised by the programme team. A number of team members are Caledonian Scholars and are working on projects in this area and modules have been written in the knowledge of the Feedback for Future Learning's 8 Feedback Principles. Module teams are expected to provide feedback within 3 weeks both formative and summative submissions.

- SDfB students attend specialist 'Guru Lectures' given by industry leaders. These are run regularly throughout the academic year at institutions accredited by The Tech Partnership (formerly e-skills UK). The lectures are accessible online at the other participating universities. Podium discussions allow students to question and interact with the speakers and the wider SDfB student community. These lectures offer students the opportunity to increase their awareness of the broader context of their discipline and interact with high profile industrial speakers.

Global learning:

- The programme has been designed with input from employers, many of whom are multinational companies e.g. P&G, CGI Group. They have provided case studies which include working in international teams, managing distributed projects etc.

- The 'Guru Lecture' series, mentioned above include lectures on the topic of global working and working in distributed teams

- Students are encouraged to consider participation in International Association for the Exchange of Students for Technical Experience (IAESTE) activities and to take part in international competitions e.g. P&G IDS challenge

Real world problem solving:

- The integrated project in year 2 specifies that students are expected to address problems set by external companies.

- Other modules use live project specifications supplied by companies as and when this is deemed appropriate.

- A number of modules (e.g. IT Project Management 1) also make use of employer written case studies

Entrepreneurship and employability:

- All SDfB students at GCU benefit from attendance at national employability events hosted by The Tech Partnership (formerly e-skills UK). These offer a forum for SDfB students, staff and employers across the UK to meet each other, network and exchange ideas.

- Students also benefit from membership of the SDfB online networking and community website which offers regular updates on placement, internship and employment opportunities.

- Students are prepared for employment and placement through the programme's Employability and Career Planning module which all students undertake during level 3.

- Students attend talks by guest speakers, industrial visits and employer led activities such as CV writing workshops, interview technique classes and employability events.

Responsible leadership and professionalism:

- Reflection activities are embedded within many modules, notably the integrated project modules
- The understanding of standards of professional ethics, behaviours and work activities are embedded within modules at each level of study and specialized knowledge of the professional field is additionally addressed explicitly in the Research Skills and Professional Issues module in year 3
- The programme will be professionally accredited (see section 1).

Methods of Assessment

Assessment methods used include: Unseen Written Examinations, Coursework Assignments (individual and group based), Class Tests (both unseen and open-book), practical laboratory tests (both unseen and open-book) and presentations (individual and group based).

Most coursework assignments involve undertaking a significant element of independent study and implementing associated practical tasks within a given deadline. Students are thus required to develop independent responsibility, plan their learning, prioritise tasks and manage their time appropriately in order to successfully complete the assignment (D8, D9, D10, D15).

Many assignments require students to retrieve and utilise information from a variety of sources including published research and commercial documentation (D6, D18).

Tutorial/Seminar work requires students to present their work (and consider the work of others), in both written and oral form (D4, D17).

As well as the Integrated Projects at levels 1-3 being team based, significant use of Group based coursework is also prevalent throughout the programme and is used to develop communication and team working skills (D4, D16)

Assessment of transferable/key skills is manifested mostly through the various coursework assessments with work of higher quality produced as the skills acquired by students mature. Effective team performance forms an explicit part of all group coursework assessment and the Integrated Project modules. The projects also specifically assess communication skills via both their presentations and reports.

The initial achievement and development of the range of transferable/key life skills (D1-D18) are also incorporated within the Personal Development Planning process.

PDP forms part of the learning strategy for the students to ensure that they undertake effective planning for their own personal, educational and career development. They will identify outcomes at an early stage and with the support of their PDP advisor will review their progress as the programme develops. At the end of the programme the student will have a Progress File comprising a transcript of their academic achievement and a Personal Development Record.

Industrial Placement Learning, Teaching and Assessment Strategy (LTAS)

The additional professional career-based skills build upon the corresponding skills obtained in the Degree programme. Additional teaching and learning is achieved on placement through the supervision of the student in a programme of work-related tasks. An Industry based supervisor (from the work place) and a University based supervisor (a member of academic staff) provides the supervision. The student is prepared for placement through the

programme's Employability and Career Planning module which all students undertake during level 3. The assessment of the skills is through a review of the placement performance based on a set of industry and university supervisor reports, a set of industrial experience reports by the student and a placement-based study project.

4. PROGRAMME STRUCTURES AND REQUIREMENTS, LEVELS, MODULES, CREDITS AND AWARDS

4.1. FULL - TIME DELIVERY

Year 1			Module Title	Credits
SHE1 Level				
Trimester A				
M1I325623	1	A	Fundamentals of Computer Systems	10
M1I322908	1	A	Fundamentals of Software Engineering	20
M1I325617	1	A	Programming 1	20
M1I325851	1	AB	Maths for Computing	20*
Trimester B				
M1I325624	1	B	Fundamentals of Network and Cloud Computing	10
M1I325625	1	B	Database Development	20
M1I325668	1	B	Integrated Project 1	20
M1I325851	1	AB	Maths for Computing	20*

Exit Award – Certificate of Higher Education in Computing   120

Year 2			Module Title	Credits
SHE2 Level				
Trimester A				
M2I325618	2	A	Programming 2	20
M2I322952	2	A	Object Oriented Analysis & Design	20
M2I625666	2	A	Human Computer Interaction	20
Trimester B				
M2I225696	2	B	Data Structures and Algorithm	20
M2I325626	2	B	Web Application Development 1	20
M2I325669	2	B	Integrated Project 2	20

Exit Award – Diploma of Higher Education in Computing   240

Year 3			Module Title	Credits
SHE3 Level				
Trimester A				
M3I322913	3	A	IT Project Management 1	20
M3I325687	3	A	DevOps	20
M3I325639	3	A	Applications Architecture and Design Patterns	20
Trimester B				
M3I326184	3	B	Research Skills & Professional Issues	20
M3W225670	3	B	Integrated Project 3	20
M3I325640	3	B	Web Application Development 2	20

Exit Award – BSc Software Development for Business   360

Year 4			Module Title	Credits
SHEH Level				
Trimester A				
MHW225671	H	AB	Honours Project	40*
MHI222956	H	A	Big Data	20
MHI322960	H	A	Secure Software Development	20
Trimester B				
MHW225671	H	AB	Honours Project	40*
MHI325614	H	B	Cloud Platform Development	20
M3I325640	3	B	Web Application Development 2 (option)	20
MHI326841	H	B	Mobile Platform Development (option)	20

Exit Award – BSc (Hons) BSc Software Development for Business 480
Industrial Placement Year (Optional) Exit Award.

Students opting to undertake placement do so in the academic session after level 3 studies. Assessment is via the additional 60 SHE credit level 3 module, M3I323077 Industrial Placement. Successful completion of that module gives (Sandwich) in the final exit award obtained by the student.

4.2 PART TIME DELIVERY

Year 1			**Module Title**	**Credits**
SHE1 Level				
Trimester A				
M1I325623	1	A	Fundamentals of Computer Systems	10
M1I325617	1	A	Programming 1	20
M1I325851	1	AB	Maths for Computing	20*
Trimester B				
M1I325624	1	B	Fundamentals of Network and Cloud Computing	10
M1I325625	1	B	Database Development	20
M1I325851	1	AB	Maths for Computing	20*
Year 2			**Module Title**	**Credits**
SHE1/2 Level				
Trimester A				
M1I322908	1	A	Fundamentals of Software Engineering	20
M2I625666	2	A	Human Computer Interaction	20
Trimester B				
M1I325668	1	B	Integrated Project 1	20
M2I325626	2	B	Web Application Development	20

Exit Award – Certificate of Higher Education in Computing(120 required)

Year 3			**Module Title**	**Credits**
SHE2 Level				
Trimester A				
M2I325618	2	A	Programming 2	20
M2I322952	2	A	Object Oriented Analysis & Design	20
Trimester B				
M2I225696	2	B	Data Structures and Algorithm	20
M2I325669	2	B	Integrated Project 2	20

Exit Award – Diploma of Higher Education in Computing (240 required) ***240***

Year 4			**Module Title**	**Credits**
SHE3 Level				
Trimester A				
M3I325687	3	A	DevOps	20
M3I322913	3	A	IT Project Management 1	20
Trimester B				
M3W225670	3	B	Integrated Project 3	20
M3I325640	3	B	Web Application Development 2	20
Year 5			**Module Title**	**Credits**
SHE3/H Level				
Trimester A				
M3I325639	3	A	Applications Architecture and Design Patterns	20

MHI322960	H	B	Secure Software Development	20	
Trimester B					
M3I326184	3	B	Research Skills & Professional Issues	20	
MHI326841	H	B	Mobile Platform Development		

Exit Award – BSc Software Development for Business(360 required)   ***360***

Year 6			**Module Title**	**Credits**	
SHEH Level					
Trimester A					
MHW225671	H	AB	Honours Project	40*	
MHI222956	H	A	Big Data	20	
Trimester B					
MHW225671	H	AB	Honours Project	40*	
MHI325614	H	B	Cloud Platform Development	20	

Exit Award – BSc (Hons) Software Development for Business   ***480***

Industrial Placement Year (Optional) Exit Award.

Students opting to undertake placement do so in the academic session after level 3 studies. Assessment is via the additional 60 SHE credit level 3 module, M3I323077 Industrial Placement. Successful completion of that module gives (Sandwich) in the final exit award obtained by the student.

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5. SUPPORT FOR STUDENTS AND THEIR LEARNING

- Induction Programme
- Academic Advising in accordance with the GCU Personal, Professional, Academically Informed, Consolidated, Transitional (PPACT) Standard
- Personal Development Planning (PDP)
- Programme and Module Handbooks (or equivalent on GCU Learn)
- Study Guides for project and coursework
- Year Tutors
- Project Co-ordinators
- Employability and Career Planning programme
- Saltire Learning Centre with access to other local and national library resources
- Student e-mail and programme/module based Virtual Learning Environment facilities (GCU Learn)
- Departmentally based PC Computer Laboratories equipped with full range of course and supporting software.
- Open access to Departmental and University Computer facilities including access to the 24hr lab
- Access to specialist laboratories including the e-motion lab

- Supply of specific proprietary software for home use to provide additional study and work access

- Open access to teaching staff including the Programme Leader

- Access to Student Wellbeing which provides assistance and guidance

- School of Computing, Engineering and Built Environment Learning Development Centre (LDC) which provides specific study skills support and guidance

- Web-based learning support tools

- Access to the University Career Centre

- Professional and Industry Body Contacts, including Guru Lectures, competitions and employability events organized by The Tech Partnership (formerly e-skills UK).

- Student representatives on the Programme Board

- Student representatives on Senate and its Standing Committees

- Student Staff Consultative Group

For Students who undertake the Optional Placement:

- Preparation programme to assist students in obtaining placement.

- Specified staff roles (Placements Tutor and Placements Administrator) to assist with identifying specific placement opportunities and helping students in applying for placements.

- When in placement liaison is conducted between the University and industry based supervisors. Planned reviews and visits of students on placement take place.

For students who undertake the programme part-time:

- Materials are made available in flexible formats.

6. **CRITERIA FOR ADMISSION**

Candidates must be able to satisfy the general admissions requirements of Glasgow Caledonian University

Programme Admission Requirements:

Standard First Year Entry Requirements

The minimum entrance requirements for entry into the first year of the programme are one of the following:

- SQA passes in 5 subjects of which at least 4 are at Higher Grade

- GCE passes in 5 subjects of which 2 are Advanced level (or equivalent)

- An appropriate program of SQA National Certificate Course units which must include passes in modules which are at least equivalent to SQA/GCE English and Mathematics at Ordinary/ Standard grade at Credit level

- HNC in Computing/IT or Equivalent

- BTEC National Diploma in Computing/IT

- IT Access course or equivalent

- Advanced GNVQ in IT
- Irish Leaving Certificate – 5 subjects passed at H level (at least C grade) or equivalent
- International qualifications which are equivalent to standard entry (in these cases appropriate EOSL qualification is required)

In all of the above cases, the qualifications must include SCE/GCE pass in English at Standard grade at Credit level (or equivalent) and Mathematics at Higher grade C (or equivalent)

Annually the Programme Board also considers the competitive entry requirements based on student demand and allocated places.

Flexible Entry: Credit Transfer and Recognition of Prior Learning (RPL)

Accumulation of credit points from other programmes of study and from prior experiential learning may allow direct entry into the programme at the appropriate level, subject to satisfying the necessary pre-requisites for completion of the programme.

Entry with Advanced Standing

Articulation to Level 3

The following HND group awards are likely to be sufficiently specialised to enable articulation directly to level 3 of this programme:
- HND Computer Science
- HND Computing - Software Development
- HND Information Systems (with suitable optional units)
- HND Interactive Media (with suitable optional units)
- HND Multimedia Computing (with suitable optional units)
- HND Multimedia Computing: Web Development (with suitable optional units)

Students with other Computing/IT HND group awards, without sufficient specialisation to enable level 3 articulation, would normally be able to articulate to level 2

Articulation to Level 2

The following HNC group award qualifications are likely to be sufficiently specialised to enable articulation directly to level 2, if the applicant also has a total of 15 HN credits:
- HNC Computing
- HNC Information Technology
- HNC Multimedia Computing: Web Development

Given the modular nature of SQA HND awards, these lists for Level 2 and level 3 articulation can only be viewed as indicative and not exhaustive. Thus consideration will be given to named HND awards on the basis of the module profile therein.

Mature and overseas students: specific requirements

Formal entry requirements may be relaxed for mature applicants (21 years of age and older) whose record of educational achievement and relevant experience is deemed to be appropriate. Non-standard applicants will normally be interviewed to assess their suitability for the programme.

Additionally overseas students require to demonstrate competence in written and spoken English, which is a minimum of IELTS 6.0 overall with no less than 5.5 in any individual component, if their entry qualification was not delivered and assessed in English.

Equal Opportunities

The University will seek at all times equality of opportunity for all applicants and seeks not to discriminate on any grounds irrelevant to the above general principle of admission.

Applicants with a disability

All applicants for admission to the programme who reveal a disability will be invited to a meeting with the Admissions Tutor and/or University Disability Adviser in order that the specific needs of the applicant can be assessed. This is not part of the selection process but students may be advised at this stage if the nature of their disability means that they might be unable to fulfil the academic or professional requirements of the programme. Equally it may not be possible for the University to make reasonable adaptations to enable an applicant to undertake a particular programme. Should this be the case, the University will respond positively and advice on alternative programmes and options will be offered.

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7. **METHODS FOR EVALUATING AND IMPROVING THE QUALITY AND STANDARDS OF TEACHING AND LEARNING**

Mechanisms for review and evaluation of teaching, learning, assessment, the curriculum and outcome standards:

- Annual Module Monitoring Process
- Annual Programme Monitoring Process/ Continuous Quality Improvement Plan
- Module Feedback Questionnaire
- External Assessor reports
- Annual monitoring (required by Professional and/or Statutory Bodies)
- Enhancement-led Internal Subject Review (ELISR)
- Enhancement-led Institutional Review (ELIR)
- Annual report to external accrediting bodies
- Reports from Professional/Statuary Body
- Academic strategy review and development by School Learning and Teaching Committee(SLTC)
- School based quality procedures for moderation of assessments (Exam and Coursework)

Committees with responsibility for monitoring and evaluating quality and standards:
- Student-Staff Consultative Group (SSCG)
- Programme Board (PB)
- School Board

- Assessment Board (AB)
- University Learning and Teaching Sub-Committee (LTSC)
- University Academic Policy and Practice Committee (APPC)
- University Senate
- School Learning and Teaching Committee (SLTC)
- Undergraduate Assessment Board

Mechanisms for gaining student feedback on the quality of teaching and their learning experience:
- Student-Staff Consultative Group (SSCG)
- Student representation on Programme Board (PB)
- Student representation on School Board
- Module Feedback Questionnaire
- GCULearn
- Open access to members of Programme Team e.g. Module Leaders, Programme Leader, Personal Tutor, Year Tutor
- Placement Reports
- NSS

Staff development priorities include:
- Postgraduate Certificate in Learning and Teaching
- Continuous Professional Development (CPD)
- Performance and Development Annual Review (PDAR)
- Peer support for teaching
- Mentoring scheme for new teaching staff
- Conference and seminar attendance and presentation
- Research Excellence Framework (REF) submission
- Membership of Higher Education Academy (HEA)
- Membership of and involvement with Professional Bodies
- Regular Programme Team and Subject Group meetings
- Institutional learning and teaching workshops

8.   ASSESSMENT REGULATIONS

Students should expect to complete their programme of study under the Regulations that were in place at the commencement of their studies on that programme, unless proposed changes to University Regulations are advantageous to students.

The Glasgow Caledonian University Assessment Regulations which apply to this programme, dependent on year of entry can be found on the GCU web site at:
 GCU Assessment Regulations

Assessment rules and Honours classification:

- The minimum pass mark is (40%) for each module.
- An overview of assessment details are provided in the Student Handbook for the programme and a copy of full assessment regulations are available from the University web site.
- To qualify for an award a student must complete all the programme requirements and obtain 360 SHE credit points for the Unclassified degree (BSc) and 480 SHE credit points for the Honours degree (BSc Hons).

Summary of classifications, marks and their interpretation for honours degree classification

Classification	Marks	Interpretation
1st	70% - 100%	Excellent: Marks represent a first class performance
2nd/Upper performance	60% - 69%	Very Good: Marks represent an upper second class
2nd/Lower	50% - 59%	Good: Marks represent a lower second class performance
3rd	40% - 49%	Satisfactory: Marks represent a third class performance

The calculation for the award and final classification of the Honours Degree is on the basis of the best 180 SHE level H and SHE level 3 credits, of which a minimum of 90 must be at SHEH. The Dissertation/Project at level H must be included in this set.

If a student enters directly into Level H, then the marks from the taught 4th year only contribute to the award and final classification of the Honours Degree.

Regulations for distinction at Unclassified degree level:

Students who pass all 6 modules at level 3 at the first attempt and who achieve an average of 70% or more (with no mark in any module below 55%) shall normally be eligible for the award of an Unclassified degree with distinction.

The Role of the External Assessor:

External Assessors are appointed to Undergraduate Assessment Boards.

The duties of an External Assessor will include the following:

- To moderate the work of the Internal Assessors in respect of the assessments under his/her jurisdiction.

- To attend Assessment Boards at which the results of a final stage assessment will be determined

- To satisfy himself/herself that the work and decisions of the Assessment Board(s) are consistent with the policies and regulations of the University and best practice in higher education.

- To ensure that students are assessed within the regulations approved by the University for the programme and to inform the University on any matter which, in his/her view, militates against the maintenance of proper academic standards.

- To report annually to the School's Learning and Teaching Committee on the standards attained by students on the programme and on any other matters which may seem appropriate for report.

9. INDICATORS OF QUALITY AND STANDARDS

Internal Indicators

- Details of approval, development events and Enhancement Led Internal Subject Reviews (ELISR) organised by the School/University

- Annual Programme Monitoring and development of programme's Continuous Quality Improvement Plan

- Annual report on module performance

- Prizes awarded by the School for outstanding performance

External Indicators

- Professional/Statutory Body accreditation visits and reports

- Quality Assurance Agency subject reviews

- External Assessor Reports

10. INFORMATION ABOUT THE PROGRAMME

Key information about the programme can be found in:

- Programme Specification Document

- Student Handbook

- Programme Specific Student Handbook

- University Website http://www.gcu.ac.uk

- University Prospectus

- Module catalogue

- Divisional publications

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 he/she takes full advantage of the learning opportunities that are provided. More detailed information on the learning outcomes, content and teaching, learning assessment methods of each module can be found in the University Module catalogue which can be accessed from the University web-site. The accuracy of the information in this document is reviewed by the University and may be checked by the Quality Assurance Agency for Higher Education.

A curriculum map is attached showing how the outcomes are developed and assessed within the programme. This relates the modules from Section 4 to the outcomes in Section 3.

DATE: **June 2018**

CURRICULUM MAP for Software Development for Business

The curriculum map links the modules (Section 4) to the Outcomes listed in Section 3

This map provides both a design aid to help academic staff identify where the programme outcomes are being developed and assessed within the course. It also provides a check list for quality assurance purposes and could be used in approval, accreditation and external examining processes. This also helps students monitor their own learning, and their personal and professional development as the course progresses. The map shows only the main measurable learning outcomes which are assessed. There are additional learning outcomes (e.g. attitudes and behaviour) detailed in the module specifications which are developed but do not lend themselves to direct measurement

			Programme outcomes																
SHE Level	Module Code	Module Title	A1	A2	A3	A4	A5	A6	A7	B1	B2	B3	B4	B5	C1	C2	C3	C4	C5
LEVEL 1	M1I325623	Fundamentals of Computer Systems	x								x								
	M1I325624	Fundamentals of Network and Cloud Computing	x						x		x								
	M1I325617	Programming 1		x	x					x					x	x			
	M1I325625	Database Development	x	x	x	x				x	x	x			x	x	x		
	M1I322908	Fundamentals of Software Engineering		x	x	x					x	x			x		x		x
	M1I325668	Integrated Project 1			x	x	x	x		x	x				x	x	x	x	x
	M1I325851	Maths for Computing		x						x									
LEVEL 2	M2I322952	Object-oriented Analysis and Design		x		x				x	x	x			x		x		
	M2I325618	Programming 2		x	x					x	x				x	x			
	M2I325626	Web Application Development 1	x	x	x					x		x			x	x			
	M2I325669	Integrated Project 2			x	x	x	x		x	x		x		x	x	x	x	x
	M2I225696	Data Structures and Algorithms		x						x	x	x							
	M2I625666	Human Computer Interaction	x	x	x	x				x	x	x	x			x	x		
LEVEL 3	M3I322913	IT Project Management 1				x	x	x			x	x					x	x	x
	M3I326184	Research Skills and Professional Issues		x			x				x		x	x					x
	M3W225670	Integrated Project 3			x	x	x	x		x	x		x	x	x	x	x	x	x
	M3I325639	Application Architecture and Design Patterns		x	x				x	x	x	x			x		x		
	M3I325687	DevOps		x	x	x				x	x	x	x			x	x	x	x
	M3I325640	Web Application Development 2	x	x	x					x	x	x		x	x	x	x		

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SHE Level	Module Code	Module Title	A1	A2	A3	A4	A5	A6	A7	B1	B2	B3	B4	B5	C1	C2	C3	C4	C5
LEVEL H	MHW225671	Honours Project			x	x	x		x		x	x	x	x	x				x
	MHI222956	Big Data		x	x				x		x	x				x			
	MHI322960	Secure Software Development	x	x	x		x		x	x	x	x				x	x	x	
	MHI325614	Cloud Platform Development	x	x					x	x	x	x				x	x		
	MHI326841	Mobile Platform Development **(option)**	x	x	x	x		x	x	x	x		x		x		x		
	M3I325640	Web Application Development 2 **(option)**	x	x	x				x	x	x		x		x	x	x		

SHE Level	Module code	Module Title	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13	D14	D15	D16	D17	D18
LEVEL1	M1I325623	Fundamentals of Computer Systems	x	x	x	x	x					x		x			x	x		
	M1I325624	Fundamentals of Network and Cloud Computing	x	x	x	x	x		x	x	x						x			x
	M1I325617	Programming 1	x	x		x	x		x	x	x	x					x			
	M1I325625	Database Development	x	x	x	x	x		x	x							x			
	M1I322908	Fundamentals of Software Engineering	x	x		x	x		x	x		x		x	x		x			x
	M1I325668	Integrated Project 1		x		x		x	x	x	x		x	x	x	x	x	x	x	x
	M1I325851	Maths for Computing	x	x			x			x				x			x			
LEVEL2	M2I322952	Object Oriented Analysis & Design	x	x		x			x	x	x						x	x		
	M2I325618	Programming 2	x	x	x	x	x		x	x	x	x					x			
	M2I325626	Web Application Development 1	x	x		x			x	x	x						x			
	M2I325669	Integrated Project 2		x		x		x	x	x	x			x	x		x	x	x	x
	M2I225696	Data Structures and Algorithms	x	x		x	x		x	x		x					x			
	M2I625666	Human Computer Interaction	x	x					x			x					x	x	x	
LEVEL 3	M3I322913	IT Project Management 1	x	x	x	x	x		x	x	x		x	x			x	x		x
	M3I326184	Research Skills and Professional Issues	x		x	x		x		x					x		x		x	x
	M3W225670	Integrated Project 3		x		x		x	x	x	x		x	x	x	x	x	x	x	x
	M3I325639	Applications Architecture and Design Patterns	x	x	x	x	x		x	x	x	x								
	M3I325687	DevOps	x	x	x	x			x	x	x	x							x	
	M3I322955	Web Platform Development 2	x	x	x	x	x		x	x		x					x			

SHE Level	Module code	Module Title	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13	D14	D15	D16	D17	D18
LEVEL H	MHW225671	Honours Project	x	x	x	x		x	x	x	x	x		x	x		x		x	
	MHI222956	Big Data	x	x	x	x	x		x	x		x					x			x
	MHI322960	Secure Software Development	x	x	x	x	x		x	x		x		x	x		x			
	MHI325614	Cloud Platform Development	x	x	x				x	x										x
	MHI326841	Mobile Platform Development (option)	x	x	x	x		x	x	x	x			x	x		x			
	M3I322955	Web Platform Development 2 (option)	x	x	x	x	x		x	x		x					x			

SHE Level	Module Code	Module Title	E1	E2	E3	E4
LEVEL 3	M3I323077	Industrial Placement	x	x	x	X

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BSC/BSc(Hons)Software Development for Business
ASSESSMENT LOADING MATRIX

Year 1									
Module Code	**Module Title**	**Trimester**	**Credits**	**Assessment Weighting**					
				Cw1	**Cw2**	**Cw3**	**Exam alternative CW**	**Ex1 (Exams Office)**	**Ex2 (Class Test)**
M1I325623	Fundamentals of Computer Systems	A	10	50%	50%				
M1I322908	Fundamentals of Software Engineering	A	20	50%	50%				
M1I325617	Programming 1	A	20	30%	70%				
M1I325851	Mathematics for Computing	AB	20	40%				60%	
M1I325624	Fundamentals of Network and Cloud Computing	B	10	50%	50%				
M1I325625	Database Development	B	20	100%					
M1I325668	Integrated Project 1	B	20	100%					
EXIT AWARD: Certificate of Higher Education									

Year 2									
Module Code	**Module Title**	**Trimester**	**Credits**	**Assessment Weighting**					
				Cw1	**Cw2**	**Cw3**	**Exam alternative CW**	**Ex1 (Exams Office)**	**Ex2 (Class Test)**
M2I325618	Programming 2	A	20	100%					
M2I322952	Object Oriented Analysis & Design	A	20	50%			50%		
M2I625666	Human Computer Interaction	A	20	60%	40%				
M2I225696	Data Structures & Algorithms	B	20	50%			50%		
M2I325626	Web Application Development 1	B	20	100%					
M2I325669	Integrated Project 2	B	20	100%					
EXIT AWARD: Diploma of Higher Education									

Year 3									
Module Code	Module Title	Trimester	Credits	**Assessment Weighting**					
				Cw1	Cw2	Cw3	Exam alternative CW	Ex1 (Exams Office)	Ex2 (Class Test)
M3I322913	IT Project Management 1	A	20	50%			50%		
M3I325687	DevOps	A	20	50%	50%				
M3I325639	Application Architecture & Design Patterns	A	20	50%			50%		
M3I325640	Web Application Development 2	B	20	30%	70%				
M3I326184	Research Skills & Professional Issues	B	20	30%	70%				
M3W225670	Integrated Project 3	B	20	100%					
EXIT AWARD: Bachelor Degree									

Year 4									
Module Code	Module Title	Trimester	Credits	**Assessment Weighting**					
				Cw1	Cw2	Cw3	Exam alternative CW	Ex1 (Exams Office)	Ex2 (Class Test)
MHI222956	Big Data	A	20	40%			60%		
MHI322960	Secure Software Development	A	20	50%				50%	
MHW225671	Honours Project	AB	40	100%					
MHI326841	Mobile Platform Development **(option)**	B	20	50%			50%		
M3I325640	Web Application Development 2 **(option)**	B	20	30%	70%				
MHI325614	Cloud Platform Development	B	20	50%				50%	
EXIT AWARD: Bachelor Degree with Honours									