

Programme specification

(Notes on how to complete this template are provide in Annexe 3)

1. Overview/ factual information

Programme/award title(s)	<ul style="list-style-type: none"> a. BSc (Honours) in Information Technology b. BSc (Ordinary) in Information Technology c. Diploma of Higher Education in Information Technology d. Certificate of Higher Education in Information Technology
Teaching Institution	Deree – The American College of Greece
Awarding Institution	The Open University (OU)
Date of first OU validation	March 2011
Date of latest OU (re)validation	March 2016
Next revalidation	June 2021
Credit points for the award	360
UCAS Code	
HECoS Code	
LDCS Code (FE Colleges)	
Programme start date and cycle of starts if appropriate.	Continuing
Underpinning QAA subject benchmark(s)	Computing
Other external and internal reference points used to inform programme outcomes.	None
Professional/statutory recognition	Professional rights in Greece
For apprenticeships fully or partially integrated Assessment.	
Mode(s) of Study (PT, FT, DL, Mix of DL & Face-to-Face) Apprenticeship	FT
Duration of the programme for each mode of study	FT - 3 year
Dual accreditation (if applicable)	NECHE Accredited
Date of production/revision of this specification	March 2021

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 students 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

In congruence with the mission of the College and the School of Liberal Arts and Sciences, the BSc in Information Technology programme sets a learner-centred educational framework which promotes critical and innovative thinking, advocates ethical practice, and cultivates skills and dispositions that complement knowledge and address the emergent challenges in the continuously evolving IT domains. It is our commitment to ensure that holders of the degree are prepared for graduate studies, academic research, and multifaceted careers in the dynamic ICT sector.

Programme goals

Goal 1: Integrate state-of-the-art research into classroom teaching.

Goal 2: Prepare graduates for further studies in Information Technology, as well as derived and application disciplines.

Goal 3: Prepare graduates with the knowledge and skills to engage with innovative research.

Goal 4: Prepare graduates for careers in Information Technology and applications areas, such as, software engineer, software developer, database administrator, data analyst, web and mobile developer, games designer and developer, user experience professional, UX/UI developer, AR/VR specialist, IT project manager, ICT officer, ICT support specialist, IT consultant, IT Digital Project manager.

Programme Competencies

Information Technology program graduates should be able to:

1. Identify the potential of emergent research and technologies in the ICT sector.
2. Assess and design IT products according to ethical and legal standards.
3. Utilize software engineering practices for the design and development of software-oriented ICT products.
4. Apply best practices to design and develop effective user experiences.
5. Apply security by design techniques to develop secure software.
6. Design and develop complete ICT solutions for real-world application areas.

Program Learning Outcomes (PLOs)

A. *Knowledge and Understanding*

A1. Demonstrate knowledge and understanding of the underlying technology, design methods and programming languages required to practice in ICT domains.

A2. Demonstrate understanding of the ethical, legal, and policy issues related to ICT approaches and professional practice.

A3. Demonstrate knowledge of user experience principles and practices.

A4. Demonstrate knowledge of theory and tools relevant to data and big data manipulation.

A5. Demonstrate knowledge of emergent and enabling technologies.

B. Cognitive Skills

B1. Discuss social, ethical, and legal issues related to the impact of information technology.

B2. Apply appropriate design and problem-solving techniques to software, database, user experience, game or intelligent system implementations.

B3. Assess the applicability of ICT infrastructures for a given set of requirements.

B4. Conduct field research and in-depth investigation related to the requirements for the design or the development of ICT product components or solutions.

C. Practical and Professional Skills

C1. Communicate using appropriate and relevant language and terminology to reach a wide range of different audiences on ICT subjects.

C2. Use design, production, and programming tools relevant to user experience, games, and automation in associated areas.

C3. Structure and write reports on various aspects of ICT domains.

C4. Structure and write in-depth technical reports detailing the concept, design, testing and deployment of complete ICT solutions and enabling technologies.

C5. Model software-oriented products related to user experience, games, intelligent systems, or industry and business applications.

D. Key/Transferable Skills

D1. Demonstrate personal and time management skills appropriate to professional conduct.

D2. Possess the oral and written communication skills to work successfully in a professional environment.

D3. Demonstrate ability to work effectively as part of a group.

D4. Demonstrate ability to learn independently and reflect on one's own learning needs and achievements.

D5. Demonstrate problem-solving skills and reflect on the process of development of a product in the ICT industry.

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)

This programme is part of a US bachelor's degree programme, awarded with a total of 121 US credits and consisting of 40 modules:

- 12 modules in Liberal Education
- 26 modules of Concentration
- 2 modules of Electives

LIBERAL EDUCATION-MISSION

A vital component of the undergraduate experience, the Liberal Education program prepares students to become globally engaged twenty-first century citizens with the knowledge, intellectual habits, practical skills, and socio-cultural sensibilities needed in a rapidly changing world. Liberal Education helps students develop essential competencies for success across disciplines and in life beyond college by cultivating open mindedness, tolerance, problem-solving ability, intellectual curiosity and creativity. It also promotes thoughtful self-expression, an ethical compass, and responsibility to the local and global communities.

Deree-Liberal Education Program

Total	43
Core Modules	
Academic Writing (WP designated course)	3
Integrated Academic Writing & Ethics	3
Academic Writing, Research (WP 1212)	3
Mathematics (basic statistics, college algebra, OR higher)	3
Public speaking or professional communication or equivalent	3
Introduction to information systems or equivalent computer literacy course*	3
Any Natural Science with lab	4
Liberal Education electives (must meet at least 4 LE competencies)	3
LE designated course in STEM/Natural Sciences	3
LE designated course in Social Sciences	9
LE designated course in Humanities	6
LE designated course in Fine and Performing Arts	3
* May be fulfilled through appropriate academic evaluation	
LE designated course in Social Sciences and Humanities must come from at least two different principles	

Information Technology programme Liberal Education Program

Core Courses:	
WP 1010 Introduction to Academic Writing	3
WP 1111 Integrated Academic Writing and Ethics	3
WP 1212 Academic Writing and Research	3
MA 2010 Statistics I or	
MA 2021 Applied Statistics for Business or	3
MA 2025 Applied Statistics for Science	
HC 2300 Professional Communication	3

ITC 1070 Information Technology Fundamentals *	3
Any Natural Science with a lab	4
Liberal Education Electives:	
LE designated course in STEM/Natural Sciences	3
LE designated courses in the Social and Behavioural Sciences (from more than one discipline)	9
PS 1001 LE Psychology as a Social Science (L4) or	3
PS 1000 LE Psychology as a Natural Science (L4)	3
ITC/PH 3036 LE Privacy, Policy, Law and Technology	3
One additional course in Social and Behavioural Sciences	3
LE designated courses in Humanities (from more than one discipline)	6
PH 3005 LE Business Ethics (L5) -or- PH 3010 LE Ethics (L5)	3
One additional course in Humanities (except Philosophy courses)	3
LE designated course in Fine and Performing Arts	3
<i>*May be fulfilled through appropriate academic evaluation</i>	

The programme also shares modules with the following programmes:

Module	Shared with
PS 1000 Psychology as a Natural Science (L4)	Psychology
PS 1001 Psychology as a Social Science (L4)	Psychology
ITC 2088 Introduction to Programming (L4)	Cybersecurity and Networks
ITC 2193 Operating Systems Concepts (L4)	Cybersecurity and Networks
ITC 2186 Computer System Architecture (L4)	Cybersecurity and Networks
MU 3164 Sound Design (L5)	Music
MG 3034 Managing People and Organizations (L5)	Business Administration
PH 3005 Business Ethics (L5)	Philosophy
PH 3010 Ethics (L5)	Philosophy
ITC 3006 Mathematics for Computing (L5)	Cybersecurity and Networks
ITC 3160 Fundamentals of RDBMS (L5)	Cybersecurity and Networks
ITC 4214 Internet Programming (L6)	Cybersecurity and Networks
ITC 3431 Cryptography and Network Security (L5)	Cybersecurity and Networks
ITC 4447 Secure Software Development (L6)	Cybersecurity and Networks
ITC 4648 Ethical Hacking and Penetration Testing (L6)	Cybersecurity and Networks
ITC 4030 Human Computer Interaction (L6)	Graphic Design

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.

N/A

2.4 List of all exit awards

Certificate of Higher Education in Information Technology
Diploma of Higher Education in Information Technology
BSc (Honours) in Information Technology
BSc (Ordinary) in Information Technology

3. Programme structure and learning outcomes
(The structure for any part-time delivery should be presented separately in this section.)

<u>Programme Structure - LEVEL 4</u>					
Compulsory modules	Credit points	Optional modules	Credit points	Is module compensable?	Semester runs in
ITC 2024 Computer Networks & Cybersecurity Fundamentals	15			Yes	Fall/Spring
ITC 2088 Introduction to Programming	15			Yes	Fall/Spring
ITC 2186 Computer System Architecture	15			Yes	Fall/Spring
ITC 2193 Operating Systems Concepts	15			Yes	Fall/Spring
ITC 2039 Concepts in Multimedia and Web Design	15			Yes	Fall/Spring
ITC 2197 Object Oriented Programming Techniques	15			Yes	Fall/Spring
ITC 2205 Software Engineering Practices	15			Yes	Fall/Spring
		PS 1001 LE Psychology as a Social Science	15	Yes	Fall/Spring
		PS 1000 LE Psychology as a Natural Science	15	Yes	Fall/Spring

Intended learning outcomes at Level 4 are listed below:

<u>Learning Outcomes – LEVEL 4</u>	
3A. Knowledge and understanding	
Learning outcomes:	Learning and teaching strategy/ assessment methods
	<p>Learning and Teaching Strategy:</p> <p>In congruence with the Learning and Teaching strategy of the College, the following methods are used at Level 4:</p> <ul style="list-style-type: none"> • Class lectures, interactive learning (class discussions, group work), exercises and practical problems solved in class. Active learning methods and a student-centred teaching approach are particularly encouraged. • Formative coursework is regularly assigned and discussed in class with students actively participating in the discussion.

Learning Outcomes – LEVEL 4

3A. Knowledge and understanding

- Collaborative in-class assignments and discussions are assigned.
- Laboratory practical sessions using various simulations tools as well as training and practice on data analysis tools.
- Video Tutorials
- Formative group-work assignments aiming at exposing students to team-work and cooperation are regularly assigned.
- Blackboard online learning platform tools including discussion boards, blogs, Wikis and Journals are employed to facilitate learning and collaboration.

At **Level 4**, student learning is guided by the teaching staff and provides the ground for students to blend theories in psychology with programming, web design and networking practices to come up with a practical solution to a problem. Almost all modules will take part in the laboratory to facilitate real-time practice and application. At this level, students are exposed to group work projects through mainly formative assessments and in class assignment, while in Software Engineering Practices they work in teams for their summative project. Assessment methods give students the opportunity to display knowledge and understanding and staff the opportunity to identify issues in either. Students get timely feedback (within 21 days) on their formative and summative assessments by their lecturer.

Where it is taught:

ITC 2024 Computer Networks & Cybersecurity Fundamentals

Computer communications systems components, models, operation, and applications. Networking standards, protocols and connectivity aspects. Local area networks design, implementation. Wide area networks, emerging technologies. Cybersecurity threats, measures and protocols. Cryptography basics.

ITC 2088 Introduction to Programming

Problem solving; problem analysis; top-down design of algorithms; implementation; testing and debugging techniques; documentation. Structured programming language constructs: data types, variables, constants, parameters, input and output, selection, iteration, file handling, arrays, elementary sorting and searching algorithms. Modular programming.

ITC 2197 Object Oriented Programming Techniques

A1. Demonstrate knowledge and understanding of the underlying technology, design methods and programming languages required to practice in ICT domains.

Learning Outcomes – LEVEL 4

3A. Knowledge and understanding

	<p>Object-oriented concepts and problem solving techniques. GUI components; event handling, collections framework and data structures, data persistence, performance and efficiency issues.</p> <p>ITC 2186 Computer System Architecture Computer architecture. Digital circuits and components. Types of data representation. Computer organizations and design. Logic design.</p> <p>ITC 2193 Operating Systems Concepts Operating system structures; functions and techniques; Performance; avoidance of deadlock and security issues. Management of Operating System resources and processes.</p> <p>ITC 2205 Software Engineering Practices Software engineering (SE) major methodologies; sw qualities; sw lifecycle; CI/CD; essential tools; GitHub; concepts in project planning; code of ethics and professional practice.</p> <p><i>Assessment Methods ref IT Assessment Plan.xlsx.</i></p>
<p>A2. <i>Demonstrate understanding of the ethical, legal, and policy issues related to ICT approaches and professional practice.</i></p>	<p>Where it is taught:</p> <p>ITC 2024 Computer Networks & Cybersecurity Fundamentals - As described above</p> <p>ITC 2205 Software Engineering Practices – As described above</p> <p>ITC 2039 Concepts in Multimedia and Web Design Multimedia types, elements, and technical components; digital image editing; animation; web site development; sustainable digital media.</p> <p><i>Assessment Methods ref IT Assessment Plan.xlsx.</i></p>
<p>A3. <i>Demonstrate knowledge of user experience principles and practices.</i></p>	<p>Where it is taught:</p> <p>ITC 2205 Software Engineering Practices – As described above</p> <p>ITC 2039 Concepts in Multimedia and Web Design - As described above</p>

Learning Outcomes – LEVEL 4

3A. Knowledge and understanding

<p>A4. <i>Demonstrate knowledge of theory and tools relevant to data and big data manipulation.</i></p>	<p>Where it is taught: ITC 2205 Software Engineering Practices – As described above ITC 2197 Object Oriented Programming Techniques - As described above</p>
<p>A5. <i>Demonstrate knowledge of emergent and enabling technologies.</i></p>	<p>Where it is taught: ITC 2024 Computer Networks & Cybersecurity Fundamentals - As described above</p>

3B. Cognitive skills

Learning outcomes:	Learning and teaching strategy/ assessment methods
<p>B1. <i>Discuss social, ethical, and legal issues related to the impact of information technology.</i></p>	<p>Where it is taught: ITC 2205 Software Engineering Practices – As described above ITC 2039 Concepts in Multimedia and Web Design - As described above</p>
<p>B2. <i>Apply appropriate design and problem-solving techniques to software, database, user experience, game or intelligent system implementations.</i></p>	<p>Where it is taught: ITC 2088 Introduction to Programming - As described above ITC 2205 Software Engineering Practices – As described above ITC 2197 Object Oriented Programming Techniques - As described above</p>

3C. Practical and professional skills	
Learning outcomes:	Learning and teaching strategy/ assessment methods
<p><i>C1. Communicate using appropriate and relevant language and terminology to reach a wide range of different audiences on ICT subjects.</i></p>	<p>Where it is taught:</p> <p>ITC 2024 Computer Networks & Cybersecurity Fundamentals - As described above</p> <p>ITC 2205 Software Engineering Practices – As described above</p> <p>ITC 2039 Concepts in Multimedia and Web Design - As described above</p> <p>ITC 2088 Introduction to Programming - As described above</p> <p>ITC 2186 Computer System Architecture - As described above</p> <p>ITC 2193 Operating System Concepts - As described above</p> <p>ITC 2197 Object Oriented Programming Techniques - As described above</p>
<p><i>C2. Use design, production, and programming tools relevant to user experience, games, and automation in associated areas.</i></p>	<p>Where it is taught:</p> <p>ITC 2205 Software Engineering Practices – As described above</p> <p>ITC 2039 Concepts in Multimedia and Web Design - As described above</p> <p>ITC 2088 Introduction to Programming - As described above</p> <p>ITC 2197 Object Oriented Programming Techniques - As described above</p>
<p><i>C3. Structure and write reports on various aspects of ICT domains</i></p>	<p>Where it is taught:</p> <p>ITC 2024 Computer Networks & Cybersecurity Fundamentals - As described above</p> <p>ITC 2197 Object Oriented Programming Techniques - As described above</p> <p>ITC 2205 Software Engineering Practices – As described above</p>

3D. Key/transferable skills	
Learning outcomes:	Learning and teaching strategy/ assessment methods
<p><i>D1. Demonstrate personal and time management skills appropriate to professional conduct.</i></p>	<p>Where it is taught:</p> <p>ITC 2024 Computer Networks & Cybersecurity Fundamentals - As described above</p> <p>ITC 2205 Software Engineering Practices – As described above</p> <p>ITC 2039 Concepts in Multimedia and Web Design - As described above</p> <p>ITC 2088 Introduction to Programming - As described above</p> <p>ITC 2186 Computer System Architecture - As described above</p> <p>ITC 2193 Operating System Concepts - As described above</p> <p>ITC 2197 Object Oriented Programming Techniques - As described above</p>
<p><i>D2. Possess the oral and written communication skills to work successfully in a professional environment.</i></p>	<p>Where it is taught:</p> <p>ITC 2024 Computer Networks & Cybersecurity Fundamentals - As described above</p> <p>ITC 2205 Software Engineering Practices – As described above</p> <p>ITC 2039 Concepts in Multimedia and Web Design - As described above</p> <p>ITC 2088 Introduction to Programming - As described above</p> <p>ITC 2186 Computer System Architecture - As described above</p> <p>ITC 2193 Operating System Concepts - As described above</p> <p>ITC 2197 Object Oriented Programming Techniques - As described above</p> <p>PS 1000 LE Psychology as a Natural Science</p> <p>Overview of the discipline of psychology as a natural science. Topics include a historical trajectory of how scientific and clinical psychology emerged; research methods used in Psychology; biological foundations of behaviour; learning and memory; consciousness; thought and language processes; motivated behaviours.</p> <p>PS 1001 LE Psychology as a Social Science</p>

3D. Key/transferrable skills	
<p><i>D3. Demonstrate ability to work effectively as part of a group.</i></p>	<p>Overview of the discipline of psychology as a social science. Topics include a historical trajectory of how scientific and clinical psychology emerged; research methods used in Psychology; human development; personality types; theories of intelligence; theories of social behavior; relationship between stress and health; psychological disorders and treatment..</p> <p><i>Assessment Methods ref IT Assessment Plan.xlsx</i></p> <p>Where it is taught: ITC 2205 Software Engineering Practices – As described above</p>
<p><i>D4. Demonstrate ability to learn independently and reflect on one's own learning needs and achievements.</i></p>	<p>Where it is taught: ITC 2205 Software Engineering Practices – As described above ITC 2197 Object Oriented Programming Techniques - As described above</p>

[Certificate of Higher Education in Information Technology]

Programme Structure - LEVEL 5					
Compulsory modules	Credit points	Optional modules	Credit points	Is module compensatable?	Semester runs in
ITC 3006 Mathematics for Computing	15			Yes	Fall/Spring
ITC 3160 Fundamentals of RDBMS	15			Yes	Fall/Spring
ITC 3051 User Experience and Interaction Design	15			Yes	New
		PH 3005 LE Business Ethics	15	Yes	Fall/Spring
		PH 3010 LE Ethics	15	Yes	Fall/Spring
		SOFTWARE DEVELOPMENT MODULES			
		ITC 3287 Advanced OO and Functional Programming	15	Yes	Fall/Spring
		ITC 3213 Algorithms and Complexity	15	Yes	Spring
		ITC 3125 Mobile Applications Development	15	Yes	Spring/Summer
		ITC 3237 Game Development	15	Yes	New
		ITC 3338 Edge Computing	15	Yes	New
		ITC 3233 Data Mining and Big Data	15	Yes	Spring
		ITC 3431 Cryptography and Network Security	15	Yes	Fall
		INTELLIGENT SYSTEMS AND AUTOMATION			
		ITC 3233 Data Mining and Big Data	15	Yes	Spring
		ITC 3213 Algorithms and Complexity	15	Yes	Spring
		ITC 3154 Cognitive Computing	15	Yes	Summer
		ITC 3338 Edge Computing	15	Yes	New
		ITC 3287 Advanced OO and Functional Programming	15	Yes	Fall/Spring
		ITC 3261 Voice User Interfaces	15	Yes	New
		USER EXPERIENCE MODULES			
		ITC 3163 Time Based Multimedia	15	Yes	New
		ITC 3261 Voice User Interfaces	15	Yes	New
		ITC 3165 3D Modelling and Animation	15	Yes	New
		ITC 3125 Mobile Applications Development	15	Yes	Fall/Spring
		ITC 3237 Game Development	15	Yes	New
		MG 3034 Managing People and Organizations	15	Yes	Fall/Spring
		GAMES MODULES			
		ITC 3165 3D Modelling and Animation	15	Yes	New

<u>Programme Structure - LEVEL 5</u>					
Compulsory modules	Credit points	Optional modules	Credit points	Is module compensatable?	Semester runs in
		ITC 3237 Game Development	15	Yes	New
		MU 3164 Sound Design	15	Yes	Fall/Spring
		ITC 3125 Mobile Applications Development	15	Yes	Fall/Spring
		ITC 3163 Time Based Multimedia	15	Yes	New
		ITC 3154 Cognitive Computing	15	Yes	Summer

Intended learning outcomes at Level 5 are listed below:

<u>Learning Outcomes – LEVEL 5</u>	
3A. Knowledge and understanding	
Learning outcomes:	Learning and teaching strategy/ assessment methods
	<p>Learning and Teaching Strategy:</p> <p>In congruence with the Learning and Teaching strategy of the College, the following methods are used at Level 5:</p> <ul style="list-style-type: none"> • Class lectures, interactive learning (class discussions, group work), exercises and practical problems solved in class. Active learning methods and a student-centred teaching approach are particularly encouraged. • Formative coursework is regularly assigned and discussed in class with students actively participating in the discussion. • Collaborative in-class assignments and discussions are assigned. • Laboratory practical sessions using various simulations tools as well as training and practice on data analysis tools. • Video Tutorials • Formative and summative group-work assignments aiming at exposing students to team-work and cooperation are regularly assigned. • Blackboard online learning platform tools including discussion boards, blogs, Wikis and Journals are employed to facilitate learning and collaboration.

Learning Outcomes – LEVEL 5

3A. Knowledge and understanding

A1. Demonstrate knowledge and understanding of the underlying technology, design methods and programming languages required to practice in ICT domains.

At Level 5, student learning gradually becomes more independent through projects aiming at developing students' analytical and computational thinking. Students are exposed to all types of assessments including exams as well as individual and group projects. Assessment methods give students the opportunity to display knowledge and understanding and staff the opportunity to identify issues in either. Students get timely feedback (within 21 days) on their formative and summative assessments by their lecturer.

Where it is taught:

ITC 3165 3D Modelling and Animation

3D object manipulation. Modelling methodologies. Lighting and rendering effects. Camera manipulation. Textures creation and use. Dynamic animation. Characters creation and manipulation.

ITC 3163 Time Based Multimedia

Time based methodological approaches. Video and audio processing. Design sequences, codecs, compositing, keying, tracking, effects, titling, motion graphics, illusions and transformation. Hardware and software integration.

ITC 3051 User Experience and Interaction design

User experience approaches, methods and tools; interaction paradigms; augmented and virtual reality basics; prototyping and wireframes; human factors and ergonomics.

ITC 3237 Game Development

Game development approaches, tools and techniques. Manipulation of visual effects and sound. Object animation. Movement control. Worlds. Interactive environments.

ITC 3338 Edge Computing

New computing paradigms; fog, edge infrastructures; slicing, management and orchestrations; IoT integration; applications; IIoT; business models; big data analytics in the fog; GDPR restrictions.

ITC 3261 Voice User Interfaces

User interfaces; voice commands, conversational UI; chatbots; virtual assistants; methods, tools, and design; challenges and testing; case studies; the role of NLP; applications and services

ITC 3125 Mobile Applications Development

Learning Outcomes – LEVEL 5

3A. Knowledge and understanding

Programming mobile devices; user interface design; user interface building; input methods; data storage; motion sensing; memory management; exception handling.

ITC 3160 Fundamentals of RDBMS

Relational Database Management Systems concepts. Data modelling, systems development and data administration in a database environment. The relational model, normalization, transaction management, concurrency, control, database security and the Structured Query Language (SQL).

ITC 3233 Data Mining and Big Data – As described above

Data and feature selection, cleaning, extracting patterns from data, evaluation, big data, tools, applications

ITC 3287 Advanced OO and Functional Programming

Advanced object-oriented and functional programming concepts; algorithmic and problem-solving techniques; advanced GUI components; event handling; data structures; data persistence; efficiency issues.

ITC 3431 Cryptography and Network Security

Basic symmetric encryption algorithms; DES, AES; Public key encryption; hash functions; digital signatures; confidentiality issues; authentication and identity management; SSL/TLS; IP security.

Assessment Methods ref IT Assessment Plan.xlsx.

Where it is taught:

ITC 3051 User Experience and Interaction design – As described above

ITC 3338 Edge Computing – As described above

ITC 3261 Voice User Interfaces – As described above

ITC 3125 Mobile Applications Development – As described above

ITC 3160 Fundamentals of RDBMS – As described above

A2. Demonstrate understanding of the ethical, legal, and policy issues related to ICT approaches and professional practice.

Learning Outcomes – LEVEL 5

3A. Knowledge and understanding

<p>A3. Demonstrate knowledge of user experience principles and practices.</p>	<p>ITC 3154 Cognitive Computing Cognition vs AI; learning and reasoning; deep learning; tools; computer vision; audio; natural language representation, processing, and generation; sentiment analysis, dialog reasoning. Cognition vs AI; learning and reasoning; deep learning; tools; computer vision; audio; natural language representation, processing, and generation; sentiment analysis, dialog reasoning.</p> <p>PH 3005 LE Business Ethics Introduction to major theories and basic moral problems in the domain of business. The use of reasoning in moral assessment of business practices. Application of moral theories to specific cases of corporate conduct ranging from the individual to society in general, in the local and the international context.</p> <p>- or -</p> <p>PH 3010 LE Ethics Introduction to the basic problems and theories of moral philosophy. The use of reasoning in moral assessment of actions and persons. Emphasis on the connection between theory and practice by application of theories to issues that matter.</p> <p><i>Assessment Methods ref IT Assessment Plan.xlsx.</i></p> <p>Where it is taught:</p> <p>ITC 3051 User Experience and Interaction design – As described above</p> <p>ITC 3163 Time Based Multimedia – As described above</p> <p>ITC 3338 Edge Computing – As described above</p> <p>ITC 3261 Voice User Interfaces – As described above</p> <p>ITC 3125 Mobile Applications Development – As described above</p> <p>ITC 3237 Game Development – As described above</p> <p><i>Assessment Methods ref IT Assessment Plan.xlsx.</i></p>
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Learning Outcomes – LEVEL 5

3A. Knowledge and understanding

<p>A4. <i>Demonstrate knowledge of theory and tools relevant to data and big data manipulation.</i></p>	<p>Where it is taught:</p> <p>ITC 3160 Fundamentals of RDBMS – As described above</p> <p>ITC 3233 Data Mining and Big Data – As described above</p> <p>ITC 3338 Edge Computing – As described above</p> <p>ITC 3006 Mathematics for Computing Concepts of Algebra, Geometry, Proofs, Structures, Counting, Probabilities and Inference, Statistics</p> <p><i>Assessment Methods ref IT Assessment Plan.xlsx.</i></p>
<p>A5. <i>Demonstrate knowledge of emergent and enabling technologies.</i></p>	<p>Where it is taught:</p> <p>ITC 3125 Mobile Applications Development – As described above</p> <p>ITC 3338 Edge Computing – As described above</p>

3B. Cognitive skills

Learning outcomes:	Learning and teaching strategy/ assessment methods
<p>B1. <i>Discuss social, ethical, and legal issues related to the impact of information technology.</i></p>	<p>Where it is taught:</p> <p>PH 3005 LE Business Ethics - or - PH 3010 LE Ethics - As described above</p> <p>ITC 3051 User Experience and Interaction design – As described above</p>
<p>B2. <i>Apply appropriate design and problem-solving techniques to software,</i></p>	<p>Where it is taught:</p> <p>ITC 3051 User Experience and Interaction design – As described above</p>

3B. Cognitive skills	
<p><i>database, user experience, game or intelligent system implementations.</i></p>	<p>ITC 3233 Data Mining and Big Data – As described above</p> <p>ITC 3338 Edge Computing – As described above</p> <p>ITC 3261 Voice User Interfaces – As described above</p> <p>ITC 3125 Mobile Applications Development – As described above</p> <p>ITC 3160 Fundamentals of RDBMS – As described above</p> <p>ITC 3154 Cognitive Computing – As described above</p> <p>ITC 3287 Advanced OO and Functional Programming – As described above</p> <p>ITC 3237 Game Development – As described above</p> <p>ITC 3431 Cryptography and Network Security – As described above</p> <p>ITC 3213 Algorithms and Complexity</p> <p>Study of algorithms and their complexity. Design, analysis and evaluation of performance. Complexity theory and classes of complexity. O, Big O and Theta notation. Computational classes. Union-Find, Divide and Conquer, Greedy, Dynamic programming, Linear Programming, Search in graphs, NP-completeness</p> <p><i>Assessment Methods ref IT Assessment Plan.xlsx.</i></p>
<p>B3. <i>Assess the applicability of ICT infrastructures for a given set of requirements.</i></p>	<p>Where it is taught:</p> <p>ITC 3051 User Experience and Interaction design – As described above</p> <p>ITC 3261 Voice User Interfaces – As described above</p> <p>ITC 3338 Edge Computing – As described above</p> <p>ITC 3125 Mobile Applications Development – As described above</p> <p>ITC 3165 3D Modelling and Animation – As described above</p> <p>ITC 3163 Time Based Multimedia – As described above</p>

3B. Cognitive skills	
<p>B4. <i>Conduct field research and in-depth investigation related to the requirements for the design or the development of ICT product components or solutions.</i></p>	<p>Where it is taught:</p> <p>ITC 3154 Cognitive Computing – As described above</p> <p>ITC 3338 Edge Computing – As described above</p> <p>ITC 3431 Cryptography and Network Security – As described above</p>

3C. Practical and professional skills	
Learning outcomes:	Learning and teaching strategy/ assessment methods
<p>C1. <i>Communicate using appropriate and relevant language and terminology to reach a wide range of different audiences on ICT subjects.</i></p>	<p>Where it is taught:</p> <p>ITC 3051 User Experience and Interaction design – As described above</p> <p>ITC 3233 Data Mining and Big Data – As described above</p> <p>ITC 3261 Voice User Interfaces – As described above</p> <p>ITC 3338 Edge Computing – As described above</p> <p>ITC 3125 Mobile Applications Development – As described above</p> <p>ITC 3165 3D Modelling and Animation – As described above</p> <p>ITC 3163 Time Based Multimedia – As described above</p> <p>ITC 3160 Fundamentals of RDBMS – As described above</p> <p>ITC 3237 Game Development – As described above</p> <p>ITC 3154 Cognitive Computing – As described above</p> <p>ITC 3287 Advanced OO and Functional Programming – As described above</p> <p>ITC 3213 Algorithms and Complexity – As described above</p>

3C. Practical and professional skills	
<p><i>C2. Use design, production, and programming tools relevant to user experience, games, and automation in associated areas.</i></p>	<p>ITC 3431 Cryptography and Network Security – As described above</p> <p>PH 3005 LE Business Ethics – As described above</p> <p>PH 3010 LE Ethics – As described above</p> <p>MU 3164 Sound Design An exploration of sound design as applied to film and television (foley sound), computer games, theatre and installations in cultural spaces (museums and galleries). The course engages with the theoretical background for work in the field before combining this with extensive practical work that allows students to establish key skills and creative practical experience</p> <p>MG 3034 Managing People and Organizations Major theories of organizational behavior and the emergence of strategic human resource management as a mechanism for managing people at work in organizations. Concepts of personality, motivation, communication, interpersonal relations, leadership, problem solving, organizational culture and structure, managing change. Processes and practices involved in implementing human resource strategy, such as recruitment, selection, training, and performance management. Practical skills associated with managerial success</p> <p>ITC 3006 Mathematics for Computing Concepts of Algebra, Geometry, Proofs, Structures, Counting, Probabilities and Inference, Statistics</p> <p><i>Assessment Methods ref IT Assessment Plan.xlsx.</i></p> <p>Where it is taught:</p> <p>ITC 3051 User Experience and Interaction design – As described above</p> <p>ITC 3233 Data Mining and Big Data – As described above</p> <p>ITC 3261 Voice User Interfaces – As described above</p> <p>ITC 3125 Mobile Applications Development – As described above</p> <p>ITC 3165 3D Modelling and Animation – As described above</p> <p>ITC 3163 Time Based Multimedia – As described above</p>

3C. Practical and professional skills	
<p>C3. <i>Structure and write reports on various aspects of ICT domains.</i></p>	<p>ITC 3160 Fundamentals of RDBMS – As described above</p> <p>ITC 3237 Game Development – As described above</p> <p>ITC 3154 Cognitive Computing – As described above</p> <p>MU 3164 Sound Design – As described above</p> <p>Where it is taught:</p> <p>ITC 3051 User Experience and Interaction design – As described above</p> <p>ITC 3287 Advanced OO and Functional Programming – As described above</p> <p>ITC 3261 Voice User Interfaces – As described above</p> <p>ITC 3338 Edge Computing – As described above</p> <p>ITC 3125 Mobile Applications Development – As described above</p> <p>ITC 3160 Fundamentals of RDBMS – As described above</p> <p>ITC 3154 Cognitive Computing – As described above</p> <p>ITC 3431 Cryptography and Network Security – As described above</p>
<p>C4. <i>Structure and write in-depth technical reports detailing the concept, design, testing and deployment of complete ICT solutions and enabling technologies.</i></p>	<p>Where it is taught:</p> <p>ITC 3154 Cognitive Computing – As described above</p>
<p>C5. <i>Model software-oriented products related to user experience, games,</i></p>	<p>Where it is taught:</p> <p>ITC 3154 Cognitive Computing – As described above</p> <p>ITC 3237 Game Development - As described above</p>

3C. Practical and professional skills	
<i>intelligent systems, or industry and business applications.</i>	<p>ITC 3125 Mobile Applications Development – As described above</p> <p>ITC 3160 Fundamentals of RDBMS – As described above</p> <p>ITC 3338 Edge Computing – As described above</p>

3D. Key/transferable skills	
Learning outcomes:	Learning and teaching strategy/ assessment methods
<i>D1. Demonstrate personal and time management skills appropriate to professional conduct.</i>	<p>Where it is taught:</p> <p>ITC 3051 User Experience and Interaction design – As described above</p> <p>ITC 3261 Voice User Interfaces – As described above</p> <p>ITC 3338 Edge Computing – As described above</p> <p>ITC 3125 Mobile Applications Development – As described above</p> <p>ITC 3165 3D Modelling and Animation – As described above</p> <p>ITC 3163 Time Based Multimedia – As described above</p> <p>ITC 3160 Fundamentals of RDBMS – As described above</p> <p>ITC 3237 Game Development – As described above</p> <p>ITC 3154 Cognitive Computing – As described above</p> <p>ITC 3287 Advanced OO and Functional Programming – As described above</p> <p>ITC 3213 Algorithms and Complexity – As described above</p> <p>ITC 3431 Cryptography and Network Security – As described above</p> <p>ITC 3233 Data Mining and Big Data – As described above</p>

3D. Key/transferrable skills	
<p><i>D2. Possess the oral and written communication skills to work successfully in a professional environment.</i></p>	<p>PH 3005 LE Business Ethics – As described above</p> <p>PH 3010 LE Ethics – As described above</p> <p>MU 3164 Sound Design – As described above</p> <p>MG 3034 Managing People and Organizations – As described above</p> <p>ITC 3006 Mathematics for Computing – As described above</p> <p>Where it is taught:</p> <p>ITC 3051 User Experience and Interaction design – As described above</p> <p>ITC 3261 Voice User Interfaces – As described above</p> <p>ITC 3338 Edge Computing – As described above</p> <p>ITC 3125 Mobile Applications Development – As described above</p> <p>ITC 3165 3D Modelling and Animation – As described above</p> <p>ITC 3163 Time Based Multimedia – As described above</p> <p>ITC 3160 Fundamentals of RDBMS – As described above</p> <p>ITC 3237 Game Development – As described above</p> <p>ITC 3233 Data Mining and Big Data – As described above</p> <p>ITC 3154 Cognitive Computing – As described above</p> <p>ITC 3287 Advanced OO and Functional Programming – As described above</p> <p>ITC 3213 Algorithms and Complexity – As described above</p> <p>ITC 3431 Cryptography and Network Security – As described above</p> <p>PH 3005 LE Business Ethics – As described above</p> <p>PH 3010 LE Ethics – As described above</p>

3D. Key/transerable skills	
<p><i>D3. Demonstrate ability to work effectively as part of a group.</i></p>	<p>MU 3164 Sound Design – As described above</p> <p>MG 3034 Managing People and Organizations – As described above</p> <p>ITC 3006 Mathematics for Computing – As described above</p> <p>Where it is taught:</p> <p>ITC 3051 User Experience and Interaction design – As described above</p> <p>ITC 3233 Data Mining and Big Data – As described above</p> <p>ITC 3154 Cognitive Computing – As described above</p> <p>ITC 3431 Cryptography and Network Security – As described above</p>
<p><i>D4. Demonstrate ability to learn independently and reflect on one's own learning needs and achievements.</i></p>	<p>Where it is taught:</p> <p>ITC 3051 User Experience and Interaction design – As described above</p> <p>ITC 3261 Voice User Interfaces – As described above</p> <p>ITC 3338 Edge Computing – As described above</p> <p>ITC 3125 Mobile Applications Development – As described above</p> <p>ITC 3233 Data Mining and Big Data – As described above</p> <p>ITC 3154 Cognitive Computing – As described above</p> <p>ITC 3287 Advanced OO and Functional Programming – As described above</p>
<p><i>D5. Demonstrate problem-solving skills and reflect on the process of development of a</i></p>	<p>Where it is taught:</p> <p>ITC 3261 Voice User Interfaces – As described above</p> <p>ITC 3338 Edge Computing – As described above</p>

3D. Key/transferable skills	
<i>product in the ICT industry.</i>	<p>ITC 3125 Mobile Applications Development – As described above</p> <p>ITC 3160 Fundamentals of RDBMS – As described above</p> <p>ITC 3237 Game Development – As described above</p> <p>ITC 3233 Data Mining and Big Data – As described above</p> <p>ITC 3287 Advanced OO and Functional Programming – As described above</p> <p>ITC 3213 Algorithms and Complexity – As described above</p> <p>ITC 3431 Cryptography and Network Security – As described above</p>

[Diploma of Higher Education in Information Technology]

Programme Structure - LEVEL 6					
Compulsory modules	Credit points	Optional modules	Credit points	Is module compensatable?	Semester runs in
ITC 4214 Internet Programming	15			Yes	Fall/Spring
ITC 4056 Enabling Technologies	15			Yes	New
ITC 4380 Artificial Intelligence Techniques	15			Yes	Fall/Summer
ITC 4140 Methods in ICT Project Research & Management	15			Yes	Fall/Spring
ITC 4979 ICT Capstone Project	15			Yes	Fall/Spring
		ITC 4344 Digital Forensics	15	Yes	Summer
		ITC 4426 Distributed Systems	15	Yes	Fall
		ITC 4446 Intrusion Detection and Incident Response	15	Yes	Spring
		SOFTWARE DEVELOPMENT MODULES	15	Yes	New
		ITC 4350 Immersive Computing	15	Yes	New
		ITC 4558 High Performance Computing	15	Yes	Fall/Spring
		ITC 4447 Secure Software Development	15	Yes	Fall/Spring
		ITC 4648 Ethical hacking and Penetration Testing			
		INTELLIGENT SYSTEMS AND AUTOMATION	15	Yes	Spring
		ITC 4441 Web Science and Social Media Platform Analytics	15	Yes	New
		ITC 4558 High Performance Computing	15	Yes	New
		ITC 4568 Machine Learning	15	Yes	New
		ITC 4162 Digital Transformation			
		USER EXPERIENCE	15	Yes	New
		ITC 4162 Digital Transformation	15	Yes	New
		ITC 4350 Immersive Computing	15	Yes	Fall/Spring
		ITC 4030 Human Computer Interaction	15	Yes	Spring
		ITC 4035 Game Design			
		GAMES	15	Yes	Spring
		ITC 4035 Game Design	15	Yes	Fall/Summer
		ITC 4445 Games Portfolio	15	Yes	New
		ITC 4350 Immersive Computing	15	Yes	New

Programme Structure - LEVEL 6

<u>Programme Structure - LEVEL 6</u>				
	ITC 4558 High Performance Computing			

Intended learning outcomes at Level 6 are listed below:

Learning Outcomes – LEVEL 6

3A. Knowledge and understanding

3A. Knowledge and understanding	
<i>Learning outcomes:</i>	Learning and teaching strategy/ assessment methods
	<p>Learning and Teaching Strategy:</p> <p>In congruence with the Learning and Teaching strategy of the College, the following methods are used at Level 6:</p> <ul style="list-style-type: none"> • Class lectures, interactive learning (class discussions, group work), exercises and practical problems solved in class. Active learning methods and a student-centred teaching approach are particularly encouraged. • Formative coursework is regularly assigned and discussed in class with students actively participating in the discussion. • Collaborative in-class assignments and discussions are assigned. • Laboratory practical sessions using various simulations tools as well as training and practice on data analysis tools. • Video Tutorials • Formative and summative group-work assignments aiming at exposing students to team-work and cooperation are regularly assigned. • Milestone submissions set to assist the students with their summative work in a progressive manner, cultivating their project and time management skills, while they receive formative feedback on selected components. • Progress meetings complement the milestone submissions; individual or group, they are held in order to monitor the progress of research/project assessments, provide formative feedback through discussion. • Blackboard online learning platform tools including discussion boards, blogs, Wikis and Journals are employed to facilitate learning and collaboration. <p>At level 6, the programme focuses on modules with learning outcomes and teaching methods aiming to develop student’s skills in managing ICT projects, so that they can deploy appropriate theory and tools for the specification, modelling, design, implementation and evaluation of systems. At this level, students will apply critical thinking and computational skills in an independent learning environment.</p>

Learning Outcomes – LEVEL 6

3A. Knowledge and understanding

A1. *Demonstrate knowledge and understanding of the underlying technology, design methods and programming languages required to practice in ICT domains.*

Through the capstone project module students will integrate knowledge and apply design and development skills in order to manage the whole process involved in the effective deployment of computers to solve practical problems. The final deliverable of the capstone project module is a small-scale computer-based product or a component of a larger application that aims to support the goals of a business firm, organisation, or other real-world requirement.

Where it is taught:

ITC 4056 Enabling Technologies

IoT and industrial IoT (IIoT) architectures; standards; softwarisation and virtualisation technologies; fifth generation (5G) networks; federated learning AI systems; blockchain; edge computing; virtual and augmented. From conception to completion

ITC 4162 Digital Transformation

Digital ecosystems and industry transformation; types and approaches. User interface evolution; Lean UX methodology; distribution platforms; business ecosystems; learning ecosystems; intelligent assistants; platform design; UX in IoT.

ITC 4558 High Performance Computing

Big data challenges; multi-core programming; shared and distributed memory; concurrency models; synchronization and coordination; distributed algorithms and frameworks; GPU programming

ITC 4350 Immersive Computing

Virtual, augmented and mixed realities; concepts in immersion, presence, and flow; approaches, tools and techniques; immersive technologies and paradigms; perceptual, cognitive, and symbolic aspects of the experience of VR and AR; impact on the user experience.

ITC 4568 Machine Learning

Machine learning problem representation and optimization; supervised, unsupervised, adversarial and deep learning; decision trees, neural networks, vector machines, rule-extractors; density-based algorithms.

ITC 4979 ITC Capstone Project

Work on an ICT solution or component, in the context of user experience, intelligent systems, games, or professional sw solution on an approved topic, with minimum supervision.

ITC 4030 Human-Computer Interaction

Foundations of human computer interaction. Interaction design basics. User Experience (UX). HCI in the software

Learning Outcomes – LEVEL 6

3A. Knowledge and understanding

process. Cognitive models and theories. Application of concepts and methodologies of software engineering, human factors and psychology to address ergonomic, cognitive, and social factors in the design and evaluation of interactive computer systems.

ITC 4035 Game Design

Game design process; player's psychology; media definitions; interactive stories; characters; game worlds; game mechanics; balancing attributes; interface types and design issues; aesthetics; UX; game violence and ethical concerns.

ITC 4140 Methods in ICT Project Research and Management

Integrated methods for ICT projects investigation and planning; problem identification; field review; selected investigative techniques; modelling and evaluation techniques; testing strategies; quality considerations. A comprehensive coverage of the procedure required for the development of a thorough ITC capstone project proposal.

ITC 4214 Internet Programming

Internet standards and infrastructure. Client and server technologies. Rich Internet applications. Scripting Languages. Server side Programming. Frameworks. Security and privacy.

ITC 4380 Artificial Intelligence Principles

History; tools; methodology; State space search, knowledge representation, probabilistic reasoning, machine learning

ITC 4441 Web Science and Social Media Analytics

Social network characteristics. Network measures and models. Data mining in social networks.

ITC 4445 Games Portfolio

Application of game design and development skills on small-scale games using a variety of tools; game engines; game programming; game design; planning and managing a portfolio of games.

ITC 4426 Distributed Systems

Distributed systems principles; communication; processes; naming; synchronization; fault tolerance; security; consistency and replication; object-based systems; document-based systems; distributed file systems; coordination-based systems; payment systems; Internet and web protocols; scalability.

ITC 4344 Digital Forensics

Computer crime and the forensic investigation process; principles and practices; digital evidence on computer systems, hardware storage, the Internet, mobile devices. Computer forensics on data analysis; operating systems

Learning Outcomes – LEVEL 6

3A. Knowledge and understanding

<p>A2. <i>Demonstrate understanding of the ethical, legal, and policy issues related to ICT approaches and professional practice.</i></p>	<p>forensics; assisting cryptographic techniques; event timing; forensic disk imaging; data recovery; file reconstruction. Rules of evidence and standards; principles of evidential management; the expert witness; standards and ethics.</p> <p>ITC 4447 Secure Software Development Best practices for developing secure software; coding techniques for data validation, session management, exception handling, data encryption; configuration techniques. Mitigating security risk from external and internal sources.</p> <p>ITC 4648 Ethical Hacking & Penetration Testing Principles of ethical hacking and penetration testing using Kali Linux, Nessus, Metasploit Framework, and Tor. Reconnaissance/Footprinting, weaponization, privilege escalation, exfiltration. Scanning networks; enumeration; sniffing; vulnerability analysis. Denial-of-Service attacks; web apps hacking and patching; SQL injection & parameter binding. Buffer overflow attacks and defenses. Introduction to hacking wireless networks and IoT. Structured security testing aimed at finding focused security vulnerabilities, flaws, risks and unreliable environments.</p> <p><i>Assessment Methods ref IT Assessment Plan.xlsx.</i></p> <p>Where it is taught:</p> <p>ITC 4162 Digital Transformation - As described above ITC 4558 High Performance Computing - As described above ITC 4350 Immersive Computing - As described above ITC 4568 Machine Learning - As described above ITC 4979 ITC Capstone Project - As described above ITC 4030 Human-Computer Interaction - As described above ITC 4035 Game Design - As described above ITC 4140 Methods in ICT Project Research and Management - As described above ITC 4380 Artificial Intelligence Principles - As described above ITC 4441 Web Science and Social Media Analytics - As described above ITC 4445 Games Portfolio - As described above</p>
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Learning Outcomes – LEVEL 6

3A. Knowledge and understanding

A3. *Demonstrate knowledge of user experience principles and practices.*

- ITC 4344 **Digital Forensics** - As described above
- ITC 4426 **Distributed Systems** - As described above
- ITC 4447 **Secure Software Development** - As described above
- ITC 4648 **Ethical Hacking & Penetration Testing** - As described above

Where it is taught:

- ITC 4056 **Enabling Technologies** - As described above
- ITC 4162 **Digital Transformation** - As described above
- ITC 4350 **Immersive Computing** - As described above
- ITC 4979 **ICT Capstone Project** - As described above
- ITC 4030 **Human-Computer Interaction** - As described above
- ITC 4035 **Game Design** - As described above
- ITC 4140 **Methods in ICT Project Research and Management** - As described above
- ITC 4214 **Internet Programming** - As described above
- ITC 4445 **Games Portfolio** - As described above

Where it is taught:

A4. *Demonstrate knowledge of theory and tools relevant to data and big data manipulation.*

- ITC 4056 **Enabling Technologies** - As described above
- ITC 4162 **Digital Transformation** - As described above
- ITC 4558 **High Performance Computing** - As described above
- ITC 4568 **Machine Learning** - As described above
- ITC 4979 **ICT Capstone Project** - As described above
- ITC 4140 **Methods in ICT Project Research and Management** - As described above

Learning Outcomes – LEVEL 6

3A. Knowledge and understanding

<p>A5. <i>Demonstrate knowledge of emergent and enabling technologies.</i></p>	<p>ITC 4214 Internet Programming - As described above ITC 4380 Artificial Intelligence Principles - As described above ITC 4441 Web Science and Social Media Analytics - As described above ITC 4447 Secure Software Development - As described above ITC 4344 Digital Forensics - As described above</p> <p>Where it is taught:</p> <p>ITC 4056 Enabling Technologies - As described above ITC 4162 Digital Transformation - As described above ITC 4350 Immersive Computing - As described above ITC 4979 ITC Capstone Project - As described above ITC 4558 High Performance Computing - As described above ITC 4446 Intrusion Detection and Incident Response - As described above ITC 4648 Ethical Hacking & Penetration Testing - As described above ITC 4140 Methods in ICT Project Research & Management - As described above</p>
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3B. Cognitive skills

Learning outcomes:	Learning and teaching strategy/ assessment methods
<p>B1. <i>Discuss social, ethical, and legal issues related to the impact of information technology.</i></p>	<p>Where it is taught:</p> <p>ITC 4035 Game Design - As described above ITC 4344 Digital Forensics - As described above ITC 4446 Intrusion Detection and Incident Response - As described above</p>

3B. Cognitive skills	
<p><i>B2. Apply appropriate design and problem-solving techniques to software, database, user experience, game or intelligent system implementations.</i></p>	<p>ITC 4447 Secure Software Development - As described above</p> <p>ITC 4648 Ethical Hacking & Penetration Testing - As described above</p> <p>ITC 4140 Methods in ICT Project Research & Management - As described above</p> <p>ITC 4162 Digital Transformation - As described above</p> <p>ITC 4350 Immersive Computing - As described above</p> <p>ITC 4979 ITC Capstone Project - As described above</p> <p>Where it is taught:</p> <p>ITC 4162 Digital Transformation - As described above</p> <p>ITC 4558 High Performance Computing - As described above</p> <p>ITC 4350 Immersive Computing - As described above</p> <p>ITC 4568 Machine Learning - As described above</p> <p>ITC 4979 ITC Capstone Project - As described above</p> <p>ITC 4030 Human-Computer Interaction - As described above</p> <p>ITC 4035 Game Design - As described above</p> <p>ITC 4140 Methods in ICT Project Research and Management - As described above</p> <p>ITC 4214 Internet Programming - As described above</p> <p>ITC 4441 Web Science and Social Media Analytics - As described above</p> <p>ITC 4447 Secure Software Development - As described above</p> <p>ITC 4648 Ethical Hacking & Penetration Testing - As described above</p>
<p><i>B3. Assess the applicability of ICT infrastructures for</i></p>	<p>Where it is taught:</p> <p>ITC 4056 Enabling Technologies - As described above</p>

3B. Cognitive skills	
<p><i>a given set of requirements.</i></p>	<p>ITC 4162 Digital Transformation - As described above</p> <p>ITC 4558 High Performance Computing - As described above</p> <p>ITC 4350 Immersive Computing - As described above</p> <p>ITC 4979 ITC Capstone Project - As described above</p> <p>ITC 4030 Human-Computer Interaction - As described above</p> <p>ITC 4035 Game Design - As described above</p> <p>ITC 4140 Methods in ICT Project Research and Management - As described above</p> <p>ITC 4214 Internet Programming - As described above</p> <p>ITC 4380 Artificial Intelligence Principles - As described above</p> <p>ITC 4441 Web Science and Social Media Analytics - As described above</p> <p>ITC 4344 Digital Forensics - As described above</p> <p>ITC 4447 Secure Software Development - As described above</p> <p>ITC 4648 Ethical Hacking & Penetration Testing - As described above</p> <p>Where it is taught:</p> <p>ITC 4056 Enabling Technologies</p> <p>ITC 4162 Digital Transformation - As described above</p> <p>ITC 4558 High Performance Computing - As described above</p> <p>ITC 4350 Immersive Computing - As described above</p> <p>ITC 4344 Digital Forensics - As described above</p> <p>ITC 4426 Distributed Systems - As described above</p> <p>ITC 4140 Methods in ICT Project Research & Management - As described above</p> <p>ITC 4979 ICT Capstone Project - As described above</p>
<p>B4. <i>Conduct field research and in-depth investigation related to the requirements for the design or the development of ICT product components or solutions.</i></p>	<p>ITC 4056 Enabling Technologies</p> <p>ITC 4162 Digital Transformation - As described above</p> <p>ITC 4558 High Performance Computing - As described above</p> <p>ITC 4350 Immersive Computing - As described above</p> <p>ITC 4344 Digital Forensics - As described above</p> <p>ITC 4426 Distributed Systems - As described above</p> <p>ITC 4140 Methods in ICT Project Research & Management - As described above</p> <p>ITC 4979 ICT Capstone Project - As described above</p>

3C. Practical and professional skills	
Learning outcomes:	Learning and teaching strategy/ assessment methods
<p><i>C1. Communicate using appropriate and relevant language and terminology to reach a wide range of different audiences on ICT subjects.</i></p>	<p>Where it is taught:</p> <p>ITC 4056 Enabling Technologies - As described above</p> <p>ITC 4162 Digital Transformation - As described above</p> <p>ITC 4558 High Performance Computing - As described above</p> <p>ITC 4350 Immersive Computing - As described above</p> <p>ITC 4568 Machine Learning - As described above</p> <p>ITC 4979 ITC Capstone Project - As described above</p> <p>ITC 4030 Human-Computer Interaction - As described above</p> <p>ITC 4035 Game Design - As described above</p> <p>ITC 4140 Methods in ICT Project Research and Management - As described above</p> <p>ITC 4214 Internet Programming - As described above</p> <p>ITC 4380 Artificial Intelligence Principles - As described above</p> <p>ITC 4441 Web Science and Social Media Analytics - As described above</p> <p>ITC 4344 Digital Forensics - As described above</p> <p>ITC 4426 Distributed Systems - As described above</p> <p>ITC 4447 Secure Software Development - As described above</p> <p>ITC 4648 Ethical Hacking & Penetration Testing - As described above</p>
<p><i>C2. Use design, production, and programming tools relevant to user experience, games, and automation in associated areas.</i></p>	<p>Where it is taught:</p> <p>ITC 4056 Enabling Technologies - As described above</p> <p>ITC 4162 Digital Transformation - As described above</p> <p>ITC 4558 High Performance Computing - As described above</p> <p>ITC 4350 Immersive Computing - As described above</p>

3C. Practical and professional skills	
<p><i>C3. Structure and write reports on various aspects of ICT domains.</i></p>	<p>ITC 4568 Machine Learning - As described above</p> <p>ITC 4979 ITC Capstone Project - As described above</p> <p>ITC 4030 Human-Computer Interaction - As described above</p> <p>ITC 4035 Game Design - As described above</p> <p>ITC 4140 Methods in ICT Project Research and Management - As described above</p> <p>ITC 4214 Internet Programming - As described above</p> <p>ITC 4441 Web Science and Social Media Analytics - As described above</p> <p>Where it is taught:</p> <p>ITC 4056 Enabling Technologies - As described above</p> <p>ITC 4035 Game Design - As described above</p> <p>ITC 4214 Internet Programming - As described above</p> <p>ITC 4344 Digital Forensics - As described above</p> <p>ITC 4446 Intrusion Detection and Incident Response - As described above</p> <p>ITC 4447 Secure Software Development - As described above</p> <p>ITC 4426 Distributed Systems - As described above</p> <p>ITC 4648 Ethical Hacking & Penetration Testing - As described above</p> <p>ITC 4140 Methods in ICT Project Research & Management - As described above</p> <p>ITC 4979 ICT Capstone Project- As described above</p>
<p><i>C4. Structure and write in-depth technical reports detailing the concept, design, testing and deployment of complete</i></p>	<p>Where it is taught:</p> <p>ITC 4056 Enabling Technologies - As described above</p> <p>ITC 4030 Human-Computer Interaction - As described above</p> <p>ITC 4162 Digital transformation - As described above</p>

3C. Practical and professional skills	
<p><i>ICT solutions and enabling technologies</i></p> <p><i>C5. Model software-oriented products related to user experience, games, intelligent systems, or industry and business applications.</i></p>	<p>ITC 4426 Distributed Systems - As described above</p> <p>ITC 4350 Immersive Computing - As described above</p> <p>ITC 4648 Ethical Hacking & Penetration Testing - As described above</p> <p>ITC 4140 Methods in ICT Project Research & Management - As described above</p> <p>ITC 4979 ICT Capstone Project - As described above</p> <p>Where it is taught:</p> <p>ITC 4035 Game Design - As described above</p> <p>ITC 4214 Internet Programming - As described above</p> <p>ITC 4162 Digital Transformation - As described above</p> <p>ITC 4447 Secure Software Development - As described above</p> <p>ITC 4445 Games Portfolio - As described above</p> <p>ITC 4558 High Performance Computing - As described above</p> <p>ITC 4350 Immersive Computing - As described above</p> <p>ITC 4568 Machine Learning - As described above</p> <p>ITC 4140 Methods in ICT Project Research & Management - As described above</p> <p>ITC 4979 ICT Capstone Project - As described above</p>

3D. Key/transferable skills	
Learning outcomes:	Learning and teaching strategy/ assessment methods
<p><i>D1. Demonstrate personal and time management skills appropriate to professional conduct.</i></p>	<p>Where it is taught:</p> <p>ITC 4056 Enabling Technologies - As described above</p> <p>ITC 4162 Digital Transformation - As described above</p> <p>ITC 4558 High Performance Computing - As described above</p>

3D. Key/transferable skills	
<p><i>D2. Possess the oral and written communication skills to work successfully in a professional environment.</i></p>	<p>ITC 4350 Immersive Computing - As described above</p> <p>ITC 4568 Machine Learning - As described above</p> <p>ITC 4979 ITC Capstone Project - As described above</p> <p>ITC 4030 Human-Computer Interaction - As described above</p> <p>ITC 4035 Game Design - As described above</p> <p>ITC 4140 Methods in ICT Project Research and Management - As described above</p> <p>ITC 4214 Internet Programming - As described above</p> <p>ITC 4344 Digital Forensics - As described above</p> <p>ITC 4380 Artificial Intelligence Principles - As described above</p> <p>ITC 4426 Distributed Systems - As described above</p> <p>ITC 4441 Web Science and Social Media Analytics - As described above</p> <p>ITC 4447 Secure Software Development - As described above</p> <p>Where it is taught:</p> <p>ITC 4056 Enabling Technologies - As described above</p> <p>ITC 4162 Digital Transformation - As described above</p> <p>ITC 4344 Digital Forensics - As described above</p> <p>ITC 4558 High Performance Computing - As described above</p> <p>ITC 4350 Immersive Computing - As described above</p> <p>ITC 4568 Machine Learning - As described above</p> <p>ITC 4979 ITC Capstone Project - As described above</p> <p>ITC 4030 Human-Computer Interaction - As described above</p> <p>ITC 4035 Game Design - As described above</p> <p>ITC 4140 Methods in ICT Project Research and Management - As described above</p> <p>ITC 4214 Internet Programming - As described above</p>

3D. Key/transferable skills	
<p><i>D3. Demonstrate ability to work effectively as part of a group.</i></p>	<p>ITC 4380 Artificial Intelligence Principles - As described above</p> <p>ITC 4426 Distributed Systems - As described above</p> <p>ITC 4441 Web Science and Social Media Analytics - As described above</p> <p>ITC 4447 Secure Software Development - As described above</p> <p>Where it is taught:</p> <p>ITC 4056 Enabling Technologies - As described above</p> <p>ITC 4214 Internet Programming - As described above</p> <p>ITC 4162 Digital Transformation - As described above</p> <p>ITC 4446 Intrusion Detection and Incident Response - As described above</p> <p>ITC 4447 Secure Software Development - As described above</p> <p>ITC 4648 Ethical Hacking & Penetration Testing - As described above</p> <p>ITC 4140 Methods in ICT Project Research & Management - As described above</p>
<p><i>D4. Demonstrate ability to learn independently and reflect on one's own learning needs and achievements.</i></p>	<p>Where it is taught:</p> <p>ITC 4056 Enabling Technologies - As described above</p> <p>ITC 4162 Digital Transformation - As described above</p> <p>ITC 4558 High Performance Computing - As described above</p> <p>ITC 4350 Immersive Computing - As described above</p> <p>ITC 4568 Machine Learning - As described above</p> <p>ITC 4979 ITC Capstone Project - As described above</p> <p>ITC 4035 Game Design - As described above</p> <p>ITC 4140 Methods in ICT Project Research and Management - As described above</p> <p>ITC 4214 Internet Programming - As described above</p>

3D. Key/transferable skills	
<p><i>D5. Demonstrate problem-solving skills and reflect on the process of development of a product in the ICT industry.</i></p>	<p>ITC 4441 Web Science and Social Media Analytics - As described above</p> <p>ITC 4447 Secure Software Development - As described above</p> <p>ITC 4648 Ethical Hacking & Penetration Testing - As described above</p> <p>Where it is taught:</p> <p>ITC 4056 Enabling Technologies - As described above</p> <p>ITC 4214 Internet Programming - As described above</p> <p>ITC 4162 Digital Transformation - As described above</p> <p>ITC 4350 Immersive Computing - As described above</p> <p>ITC 4558 High Performance Computing - As described above</p> <p>ITC 4447 Secure Software Development - As described above</p> <p>ITC 4648 Ethical Hacking & Penetration Testing - As described above</p> <p>ITC 4140 Methods in ICT Project Research & Management - As described above</p> <p>ITC 4979 ICT Capstone Project - As described above</p>

[BSc (Honours) in Information Technology]

[BSc (Ordinary) in Information Technology]

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 Information Technology programme has the following distinctive features:

1. It leads to the awarding of two degrees:
 - a. A US BSc degree accredited by the US NECHE (New England Commission of Higher Education), and
 - b. A UK BSc (Honors) validated by the UK Open University (OU).
2. It prepares students to sit for relevant certifications
3. It offers opportunities for practical and professional experience through research and internships (US degree).
4. It provides a student-centered learning environment that promotes the academic and personal development, broadens horizons, and builds confidence to become independent learners.
5. It exposes students to state-of-the art facilities and a unique campus environment.

5. Support for students and their learning.

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

All new students participate in an orientation programme as they begin their first semester at the College. The orientation program is designed to introduce them to the campus, the academic system, College regulations and policies, and student life.

Student Success Center (SSC)

The Student Success Centre supports students by offering comprehensive, integrated services in the areas of academic advising, Open University validation issues, student records, registration, and payments in a one-stop area. The Centre is committed to providing students with consistent, high-quality service, both in person and through technology. The Student Success Centre aims to create the optimum conditions so that students can follow the path to academic success.

Students may visit the Student Success Centre to pay a bill, request a certificate, obtain a form, arrange to bring a visitor on campus, obtain their transcript, see an academic advisor, ask about OU validation, change a course, and obtain or replace their student ID.

The SSC web page has been set up to reflect the one-stop concept of the Centre and includes information from different departments. It may be accessed from the “Quick Links” on the ACG homepage (www.acg.edu) and it allows students to print forms or view the academic calendar, academic policies, final exams schedule, course schedule, graduation instructions, major requirements, frequently asked questions (FAQs), the e-mail directory, and financial aid and international student information. From the SSC web page students may choose to log on to the myACG portal, where they can print their personal course schedule and their unofficial transcript. To log on, students need to go to the SSC and get their PIN, which is private, should not be shared with anyone, and will be given to the students only if they have no obligations (business office, library, or academic advising).

Academic Advising

All students are assigned an academic advisor responsible for assisting them in gaining the greatest benefit from their educational experience at the College. Good academic advising is a vital part of the learning process and an integral part of the basic teaching function of the College. Effective academic advising provides specific aid to students in considering and completing academic programs, but it goes beyond mere course scheduling; it includes planning, decision-making, implementation, and evaluation of academic, personal, and career-related matters, and exploration. The College assigns all entering freshmen a First-Year advisor from the Office of Academic Advising. Thereafter, the advising programme is faculty-based and fosters personal contact between students and faculty. Department Heads and Programme Coordinators act as educational consultants.

New incoming students and continuing Deree-ACG students are required to consult every semester and during the announced advising period with an advisor at the Office of Academic Advising.

Advisors never make decisions for students. Their overriding objective is to assist students in developing the maturity required to make their own choices and to be responsible for the consequences of those choices.

Student Academic Support Services (SASS)

Student Academic Support Services (SASS) provides support to the learning of Deree students at the undergraduate and graduate level through a variety of approaches encouraging participatory learning. SASS learning facilitators recognize that individual qualities and efforts vary; therefore, facilitators adopt a learner-centred approach without undue interference in order to promote individual development and to respond to the needs of each student. The goal of SASS is to help students become insightful readers, effective critical thinkers, and independent learners.

Student Academic Support Services offers two major types of academic support:

1. One-on-one Sessions conducted on a one-on-one basis between a facilitator and a student. They are provided on a first-come-first-served basis and cover a wide range of college skills.
2. Group Sessions are of two kinds, both designed to emphasize direct interaction between participants:
 - a. Academic-skills workshops are offered on demand. They may focus on sharpening a quantitative or qualitative skill for a course or help participants sharpen conversational skills in a foreign language.

- b. Study-skills workshops are offered regularly. They are designed to help participants improve a particular study skill, such as note-taking or exam preparation.

Disability and Learning Differences

The College Committee on Disability and Learning Differences monitors and recommends policies and procedures to benefit individuals with disabilities and learning differences. In addition, it makes recommendations in consultation with relevant academic departments/ areas regarding special assessments to be given by tutors to specific students with disability and/or learning differences.

The Committee proposes alternative assessment methods for specific students with disability and/or learning differences in consultation with relevant academic departments/ areas to ensure appropriateness of assessment method. The Committee is obliged to follow the advice of the department with regard to appropriateness and communicate with the Registrar about this. The Committee on Disability and Learning Differences submits the list of OU students with disabilities and learning difficulties and their approved alternative assessment methods to the OU Validation Office and Registrar.

6. Criteria for admission

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

The Admissions Process

To qualify for admission to the academic programs of the College, applicants must demonstrate that they possess the appropriate qualifications to enable them to be successful in the program of their choice. To this end, applicants must meet the following requirements:

The standard minimum entry requirement for the major's programme is the following: 14/20 in the Greek system, an overall average grade of C in the US system, or 24 and above in the International Baccalaureate or the equivalent of any other educational grading system. Applicants whose grades are between 11/20-13.99/20 or its equivalent, may be admitted to the College on a provisional basis.

Students admitted on a provisional basis will be required to fulfil the following conditions in order to be allowed to continue on their selected major after the completion of one academic year after their acceptance to Deree:

- Meet with an assigned advisor at the Academic Advising Office at least twice every month or whenever the advisor thinks it is necessary. The assigned advisor will monitor the student progress very closely and may require that they seek academic help through the Student Academic Support Services.
- The number of modules students will be allowed to register for will be determined by their English language placement (see section "English Language Requirements"). However, in no case will they be allowed to register for a total of more than 2 modules if placed in EAP 1002 or for more than 4 modules if placed in WP 1010. Students with provisional status who are placed in

EAP 999, EAP 1000, EAP 1001 must first complete their English for Academic Purpose modules before they begin taking College level modules along with EAP 1002.

- Students who have successfully completed only the EAP sequence during their first academic year will be able to continue.
- Achieve a minimum cumulative average (CI) of at least 2.0 after one academic year.
- After the completion of one academic year on provisional status, students' performance will be reviewed by the Committee on Academic Standards and Policies (CASP), which will decide on student progression and/or new conditions.
- Students on provisional status are subject to the College probation policy (see section "Academic Probation").

The following is required for all freshmen applicants:

1. A completed application form.
2. A letter of recommendation from an academic teacher or professor.
3. An official secondary school transcript and an official copy of a secondary diploma, both legally certified.
4. A certified copy of their identity card for Greek citizens or a valid passport for non-Greek citizens.
5. An interview with an admissions counsellor.
6. Evidence of proficiency in English.

Evidence of Proficiency in English

All applicants must demonstrate proficiency in the English language either by taking the College's English Placement Test (EPT) or by submitting any evidence derived from one of the following tests:

Pearson test of Academic English (PTE Academic): 58 or greater

Michigan State University Certificate of Language Proficiency (MSU-CELP)

Michigan Proficiency Certificate

Cambridge Proficiency Certificate

Cambridge Advanced English (CAE) with Grade A only

International Baccalaureate Certificate*

International Baccalaureate Diploma

IELTS: (academic) 6.5 or above

SAT: 450 or above

ACT: 18 or above

TOEFL

(paper based): 567 or above

TOEFL (computer based): 227 or above

TOEFL (internet based): 87 or above

GCE higher level English: Grade C or greater

Oxford Online Placement Test: 99 or above

* With grade 4 and above in the English higher-level subject or at least an average of 12 in the higher level subjects.

Applicants presenting a TOEFL score should arrange to have the test results sent directly to the Office of Admissions by the Educational Testing Service (ETS). The College's Institution Code Number is 0925. TOEFL scores are valid for 2 years.

Students may also qualify to take WP 1010 by submitting evidence of fluency based on graduation from an English-speaking secondary school or programme.

The above listed grades qualify the student for placement directly into WP 1010. Applicants who do not qualify for WP 1010 but who otherwise show academic promise may be admitted conditionally and placed in the English for Academic Purposes Program (see section "English Language Requirements").

7. Language of study

English

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

N/A

9. 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)

N/A

10. Methods for evaluating and improving the quality and standards of teaching and learning.

Deree faculty comprises of experienced professionals active in their respective fields through their research, publications, think-tank work and other forms of professional engagement. Significant body of research has been garnered by Deree faculty in the fields of learning innovation and pedagogy. Recognizing the need of a structured holistic approach to teaching and learning, over the past years, Deree has been implementing a variety of initiatives aimed at boosting the faculty's teaching excellence geared toward maintaining high standards and their comparability across sections, modules, and schools. An important component of this strategy was driven by the recognition that new members of the faculty have to be socialized with the sophisticated, induced with best standard emulated by the OU, Deree teaching culture.

Each academic year a wide range of activities take place aiming to raising staff awareness with regards to the College's emphasis on pedagogy and research. Lectures, workshops, and

seminars are organized by the College and are well-attended by the staff of all departments/areas.

Recognizing the importance of pedagogy and research, the College has established the Deree Teaching and Learning Center, which organizes workshops on current pedagogy, informs faculty about relevant opportunities abroad and seeks external funding for such purposes among other things. It also assists departments with planning and monitoring implementation of a series of events (e.g. lectures, workshops, symposia, round-table discussions, colloquia, retreats) every semester.

A variety of teaching, learning and assessment resources will be used that include:

- web-based materials
- hands-on practical work
- virtual and augmented reality solutions
- computer-aided learning packages
- online forums
- directed reading
- formative assessments
- summative assessments
- self-assessment questions

10. Changes made to the programme since last (re)validation

Given the nature of the field, the programme needed to be and has been redesigned. The programme does no longer have pathways but rather utilizes directions towards sets of modules that collectively have the form of a 'concentration' area.

In March 2016, the programme was revalidated with three pathways:

- Software Development: very successful; appealing to the great majority of the IT students
- Digital Media Technologies: there has been remarkable decrease in the numbers of new students, reaching the 0 new intakes during the AY 18-19. In AY 19-20, there had been 3 new students.
- Network Technologies: With the introduction of the Cybersecurity and Networks Program in the Fall 2020, the pathway was removed.

Our interpretation of the low and decreasing interest in the Digital Media Technologies pathway is related to the creation of the program Graphic Design, which serves an overlapping perspective in a more artistic manner. We also feel that as the acceptance and general use of technology is radically increasing, and given the interdisciplinarity of the applications, we need to shift the programme focus towards cutting-edge advancements in the field.

The redesigned programme utilizes a core of modules that cover the essential topics and basis of an information technology programme. As students progress to level 5 and later to level 6 modules, they are given the opportunity to choose a directional focus towards software development (the area which is already successful), and three of the most popular IT areas currently and with excellent prospects for the next decade.

Annexe 1: Curriculum map



Annexe 2: Notes on completing the OU programme specification template

Annexe 1 - Curriculum map

This table indicates which study units assume responsibility for delivering (shaded) and assessing (X) particular programme learning outcomes.

Level	Study module/unit	Programme outcomes																		
		A1	A2	A3	A4	A5	B1	B2	B3	B4	C1	C2	C3	C4	C5	D1	D2	D3	D4	D5
4	PS 1001 LE Psychology as a Social Science <i>or</i> PS 1000 LE Psychology as a Natural Science																X			
	ITC 2039 Concepts in Multimedia and Web Design		X	X			X				X	X				X	X			
	ITC 2024 Computer Networks & Cybersecurity Fundamentals	X	X			X					X		X			X	X			
	ITC 2088 Introduction to Programming	X						X			X	X				X	X			
	ITC 2186 Computer System Architecture	X									X					X	X			
	ITC 2193 Operating Systems Concepts	X									X					X	X			
	ITC 2197 Object Oriented Programming Techniques	X			X			X			X	X	X			X	X		X	
	ITC 2205 Software Engineering Practices	X	X	X	X		X	X			X	X	X			X	X	X	X	

Level	Study module/unit	Programme outcomes																		
		A1	A2	A3	A4	A5	B1	B2	B3	B4	C1	C2	C3	C4	C5	D1	D2	D3	D4	D5
5	PH 3010 LE Ethics <i>or</i> PH 3005 LE Business Ethics		X				X				X					X	X			
	ITC 3006 Mathematics for Computing				X						X					X	X			
	ITC 3160 Fundamentals of RDBMS	X	X		X			X			X	X	X		X	X	X			X
	ITC 3051 User Experience and Interaction Design	X	X	X			X	X	X		X	X	X			X	X	X	X	
	ITC 3165 3D Modelling and Animation	X							X		X	X				X	X			
	ITC 3163 Time Based Multimedia	X		X					X		X	X				X	X			
	ITC 3125 Mobile Applications Development	X	X	X		X		X	X		X	X	X		X	X	X		X	X
	ITC 3237 Game Development	X		X				X			X	X			X	X	X			X

	ITC 3287 Advanced OO and Functional Programming	X					X			X	X			X	X		X	X
	ITC 3213 Algorithms and Complexity						X			X				X	X			X
	ITC 3233 Data Mining and Big Data	X			X		X			X	X			X	X	X	X	X
	ITC 3154 Cognitive Computing		X				X		X	X	X	X	X	X	X	X	X	
	ITC 3338 Edge Computing	X	X	X	X	X	X	X	X	X		X		X	X		X	X
	ITC 3261 Voice User Interfaces	X	X	X			X	X		X	X	X		X	X		X	X
	ITC 3431 Cryptography and Network Security	X					X		X	X		X		X	X	X		X
	MG 3034 Managing People and Organizations									X				X	X			
	MU 3164 Sound Design									X	X			X	X			

Level	Study module/unit	Programme outcomes																		
		A1	A2	A3	A4	A5	B1	B2	B3	B4	C1	C2	C3	C4	C5	D1	D2	D3	D4	D5
6	ITC 4056 Enabling Technologies	X		X	X	X			X	X	X	X	X	X		X	X	X	X	X
	ITC 4030 Human Computer Interaction	X	X	X				X	X		X	X		X		X	X			
	ITC 4035 Game Design	X	X	X			X	X	X		X	X	X		X	X	X		X	
	ITC 4214 Internet Programming	X	X	X	X			X	X		X	X	X		X	X	X	X	X	X
	ITC 4162 Digital Transformation	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X
	ITC 4344 Digital Forensics	X	X		X		X		X	X	X		X			X	X			
	ITC 4380 Artificial Intelligence Principles	X	X		X				X		X					X	X			
	ITC 4426 Distributed Systems	X	X							X	X		X	X		X	X			
	ITC 4441 Web Science and Social Media Platform Analytics	X	X		X			X	X		X	X				X	X		X	
	ITC 4446 Intrusion Detection and Incident Response					X	X						X					X		
	ITC 4447 Secure Software Development	X	X		X		X	X	X		X		X		X	X	X	X	X	X
	ITC 4350 Immersive Computing	X	X	X		X	X	X	X	X	X	X		X	X	X	X		X	X
	ITC 4558 High Performance Computing	X	X		X	X		X	X	X	X	X			X	X	X		X	X

ITC 4568 Machine Learning	X	X		X			X			X	X			X	X	X		X	
ITC 4648 Ethical Hacking & Penetration Testing	X	X			X	X	X	X		X		X	X				X	X	X
ITC 4445 Games Portfolio	X	X	X											X					
ITC 4140 Methods in ICT Project Research & Management	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
ITC 4979 ICT Capstone Project	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X

Annexe 2: Notes on completing programme specification templates

- 1 - This programme specification should be mapped against 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.