MQF/EQF Level 4

IT4-A5-21

Advanced Diploma in IT (iGaming)

Course Specification

Course Description

The Advanced Diploma in iGaming is the next level up from the diploma route, and provides hands-on experience to learners targeting junior roles in this innovative sector. It can also serve as a precursor to Software Development, iGaming, Digital Games or Business Analytics degrees. This two-year programme provides a balance of core software, web and mobile app/game development skills alongside advanced digital marketing, SEO, database design and implementation, advanced Mathematics, Data Analytics and Visualisation. The first year of this programme focuses on providing learners with core development skills whereas the second year provides further specialisation and puts the core skills to good use through work-based learning (subject to eligibility), real-world implementations and projects. Upon completion of this programme, skilled individuals targeting this sector will be in a position to build a comprehensive portfolio.

*Apprenticeship is subject to iGaming legal requirements. Please note that applicants who are not yet 18 years of age can still apply for the course and will be doing a replacement unit.

Programme Learning Outcomes

At the end of the programme the learner will be able to:

1. *Identify the appropriate software infrastructure for given requirements;*
2. *Recognise the core design, mathematical and development concepts required to perform data analysis and convey it through software applications;*
3. *Design, plan and produce content that is compliant to organisational and legal standards;*
4. *Implement bespoke software applications that target a web / desktop and mobile platforms.*

Entry Requirements

MCAST Diploma in IT; OR
MCAST Diploma in iGaming; OR
Any MCAST Level 3 Diploma, whilst being in possession of the compulsory subjects as indicated hereunder; OR
4 SEC/O-Level/SSC&P (Level 3) passes
Compulsory: Mathematics
AND
Compulsory: Computer Studies or Physics or Information Technology
(Where applicable) MCAST also gives due recognition to ICT C3 as will be shown on the applicant's SSCP

Applicants with a good working knowledge of English Language will benefit from a more positive learning experience throughout the course.

Key Information

Awarding Body – MCAST

Accreditation Status – Accredited via MCAST's Self Accreditation Process (MCAST holds Self-Accrediting Status as per 1st schedule of Legal Notice 296/2012)

Type of Programme: Qualification

MQF Level	Examples of Qualifications	'Qualification' Minimum Credits Required	'Award' Credits Required
Level 8	Doctoral Degree Third Cycle Bologna Process	NA	NA
Level 7	Masters Second Cycle Bologna Process	90-120	Less than 30
	Post-Graduate Diploma	60	
	Post-Graduate Certificate	30	
Level 6	Bachelor[23]/Bachelor (Hons.)[24] First Cycle Bologna Process	180-240	Less than 180
Level 5	Short Cycle Qualification	120	Less than 60
	Undergraduate Higher Diploma	90	
	Undergraduate Diploma	60	
	Undergraduate Certificate	30	
	VET Level 5 Programme[25]	60-120	
Level 4	Pre-Tertiary Certificate	30	Less than 120
	VET Level 4 Programme[26]	120	
	MATSEC Certificate	NA	
Level 3	VET Level 3 Programme[27]	60	Less than 60
	General and Subject Certificate	NA	
Level 2	VET Level 2 Programme[28]	60	Less than 60
	General and Subject Certificate	NA	
Level 1	VET Level 1 Programme[29]	40	Less than 40
	General and Subject Certificate	NA	
Introductory Level A	Preparatory Programme	30	Less than 30
Introductory Level B	Pre-entry Basic Skills Course	30	Less than 30

Table 1: Minimum number of credits for 'Qualifications' and parameters for 'Awards'

Fig.1: p56, Ministry for Education and Employment & National Commission for Further and Higher Education Malta (2016). *Referencing Report, 4th Edition*. NCFHE.

Total number of Hours: 3000 hours

Mode of attendance: Fully Face-to-Face Learning

Duration: 2 Years

Target audience for MCAST full-time courses is 16 to 65+

The official language of instruction at MCAST is English. All notes and textbooks are in English (except for language courses, which will be in the respective language being instructed). International candidates will be requested to meet English language certification requirements for access to the course.

This course will be offered at

MCAST has four campuses as follows:

MCAST Main Campus
Triq Kordin, Paola, Malta

All courses except for the Institute for the Creative Arts, Centre of Agriculture, Aquatics and Animal Sciences are offered here.

Institute for the Creative Arts
Mosta Campus
Misraħ Għonoq Tarġa Gap,
Mosta

Institute of Applied Sciences,
Centre of Agriculture, Aquatics and Animal Sciences,
Luqa Road, Qormi

Gozo Campus
J.F. De Chambray Street
MCAST, Għajnsielem
Gozo

Teaching, Learning and Assessment

The programmes offered are vocational in nature and entail both theoretical lectures delivered in classes as well as practical elements that are delivered in laboratories, workshops, salons, simulators as the module requirements dictate.

Each module or unit entails a number of in person and/or online contact learning hours that are delivered by the lecturer or tutor directly (See also section 'Total Learning Hours).

Access to all resources is provided to all registered students. These include study resources in paper or electronic format through the Library and Resource Centre as well as tools, software, equipment and machinery that are provided by the respective institutes depending on the requirements of the course or module.

Students may however be required to provide consumable material for use during practical sessions and projects unless these are explicitly provided by the College.

All Units of study are assessed throughout the academic year through continuous assessment using a variety of assessment tools. Coursework tasks are exclusively based on the Learning Outcomes and Grading Criteria as prescribed in the course specification. The Learning Outcomes and Grading Criteria are communicated to the Student via the coursework documentation.

The method of assessment shall reflect the Level, credit points (ECTS) and the schedule of time-tabled/non-timetabled hours of learning of each study unit. A variety of assessment instruments, not solely Time Constrained Assignments/Exams, are used to gather and interpret evidence of Student competence toward pre-established grading criteria that are aligned to the learning outcomes of each unit of the programme of study.

Grading criteria are assessed through a number of tasks, each task being assigned a number of marks. The number of grading criteria is included in the respective Programme Specification.

The distribution of marks and assessment mode depends on the nature and objectives of the unit in question.

Coursework shall normally be completed during the semester in which the Unit is delivered.

Time-constrained assignments may be held between 8 am and 8 pm during the delivery period of a Unit, or at the end of the semester in which the Unit is completed. The

dates are notified and published on the Institute notice boards or through other means of communication.

Certain circumstances (such as but not limited to the Covid 19 pandemic) may lead Institutes and Centres to hold teaching and assessment remotely (online) as per MCAST QA Policy and Standard for Online Teaching, Learning and Assessment (Doc 020) available via link https://www.mcast.edu.mt/college-documents/

The Programme Regulations referenced below apply. (DOC 004 available at: link https://www.mcast.edu.mt/college-documents/)

Total Learning Hours

The total learning hours required for each unit or module are determined as follows:

Credits (ECTS)	Indicative contact hours	Total Student workload (hrs)	Self-Learning and Assessment Hours
1	5 – 10 hrs	25 hrs	20-15 hrs*
2	10 – 20 hrs	50 hrs	40-30 hrs*
3	15 – 30 hrs	75 hrs	60-45 hrs*
4	20 – 40 hrs	100 hrs	80-60 hrs*
6	30 – 60 hrs	150 Hrs	120-90 hrs*
9	45 – 90 hrs	225 hrs	180-135 hrs*
12	60 – 120 hrs	300 hrs	240-180 hrs*

* The 'Self-Learning and Assessment Hours' amount to the difference between the contact hours and total student workload.

Grading system

All MCAST programmes adopt a learner centred approach through the focus on Learning Outcomes. The assessment of MCAST programmes is criterion-referenced and thus assessors are required to assess learners' evidence against a pre-determined set of Learning Outcomes and assessment criteria.

For a student to be deemed to have successfully passed a unit, a minimum of 50% (grade D) must be achieved. In case of part time programmes, the student must achieve a minimum of 45% to successfully pass the unit.

All units are individually graded as follows:
A* (90-100)
A (80-89)
B (70-79)
C (60-69)
D (50-59)
Unsatisfactory work is graded as 'U'.

Work-based learning units are graded on a Pass/Fail basis only.

Detailed information regarding the grading system may be found in the following document: DOC 004 available at: link https://www.mcast.edu.mt/college-documents/

Intake Dates

•MCAST opens calls for application once a year between July and August of each year for prospective applicants residing in MALTA.
•Applications to full-time courses from international students not residing in MALTA are accepted between April and Mid-August.
•For exact dates re calls for applications please follow this link https://www.mcast.edu.mt/online-applications-2/

Course Fees

MCAST course are free for Maltese and EU candidates. International candidates coming from outside the EU need to pay fees for the respective course. Course fees are set on a per-level and course duration basis. For access to course fee structure and payment methods please visit https://www.mcast.edu.mt/fee-payments-for-non-eu-candidates/.

Method of Application

Applications to full-time courses are received online via the College Management Information System. Candidates can log in using Maltese Electronic ID (eID) or European eIDAS (electronic identification and trust services) to access the system directly and create an account as the identity is verified electronically via these secure services.

Non-EU candidates need to request account creation though an online form by providing proof of identification and basic data. Once the identity is verified and the account is created the candidate may proceed with the online application according to the same instructions applicable to all other candidates.

Non-EU candidates require a study visa in order to travel to Malta and joint the course applied for. For further information re study-visa please access https://www.identitymalta.com/unit/central-visa-unit/.

For access to instructions on how to apply online please visit https://www.mcast.edu.mt/online-applications-2/

Contact details for requesting further information about future learning opportunities:

MCAST Career Guidance
Tel: 2398 7135/6
Email: career.guidance@mcast.edu.mt

Current Approved Programme Structure

Unit Code	Unit Title	ECTS	Year	Semester
ITDBS-406-1501	Database Concepts and Design	6	1	A
ITSFT-406-2005	Programming Concepts	6	1	A
ITMMD-406-1501	Introduction to Multimedia Design	6	1	A
ITWEB-406-1501	Website Design	6	1	A
ITSFT-406-1506	Client Side Scripting	6	1	B
ITSFT-406-2000	Logic Programming	6	1	B
ITIGM-406-2103	iGaming Essentials	6	1	B
ITDBS-406-1502	Relational Databases	6	1	B
CDKSK-406-2007	Mathematics	6	1	YEAR
CDKSK-406-2001	English	6	1	YEAR
CDIGM-406-2104	Advanced Mathematics	6	2	A
ITMMD-406-2004	Introduction to Object Oriented Programming	6	2	A
ITIGM-406-2105	Advanced Digital Marketing	6	2	A
CDKSK-404-1915	Employability and Entrepreneurial Skills	4	2	A
CDKSK-402-2104	Community Social Responsibility	2	2	A
ITIGM-406-2107	Advanced Data Analytics and Development	6	2	A
ITIGM-406-2106	Web Optimisation	6	2	B
ITSFT-406-2001	Introduction to Mobile Applications Development	6	2	B
ITSFT-406-1508	Server Side Scripting	6	2	B
ITPRJ-406-2011	Project	6	2	B
ITCMP-406-2102	Vocational Competences in iGaming	6	2	YEAR
Total ECTS		**120**	**/**	**/**

ITDBS-406-1501: Database Concepts and Design

Unit Level (MQF/EQF): 4

Credits: 6

Delivery Mode: Fully Face-to-Face Learning

Total Learning Hours: 150

Unit Description

Today, in a challenging and fast paced environment, businesses and organizations need to be able to make quick responses in order to remain competitive and meet information demands. Databases are central in supporting core business processes and information systems and therefore need to be as efficient and accurate as possible.

This unit is relevant to learners wishing to develop a sound understanding of the features and functions of databases, and skills in designing and building an efficient database to meet specified requirements and provide accurate information. The unit will introduce the background database concepts and key design methods integral to creating a working database with validity and integrity. No previous competence with a database is assumed.

Learners should develop the underpinning knowledge and understanding through the database design and build process to enable efficiency and accuracy in terms of both structure and data. Learners will design and construct relationships through the process of normalisation, identifying entities and attributes, applying appropriate data types and other properties for implementation within a database application. Database structures will be enhanced by the learner using a variety of software and SQL features that allow for the creation and alteration of tables.

On completion of the unit learners will be familiar with essential database theory and design methods. Learners will be able to implement these within database application software and use a range of SQL techniques to manage the database structure.

Learning Outcomes

On completion of this unit the learner will be able to:

1. *Explain the features of a database and a database management system (DBMS).*
2. *Explain and use database design methods to create a relational database structure.*
3. *Implement a relational database design with the use of structured query language.*

ITSFT-406-1506: Client Side Scripting

Unit Level (MQF/EQF): 4

Credits: 6

Delivery Mode: Fully Face-to-Face Learning

Total Learning Hours: 150

Unit Description

This unit will allow learners to demonstrate they have the necessary knowledge and ability to create dynamic web based applications. They will become proficient in using client-side scripting techniques combining JavaScript, CSS, HTML 5, and JQuery. Current user expectations are for fast, interactive and responsive web applications, thus the need for skills in client-side scripting techniques is crucial. This is a practical unit with opportunities for the learner to practice the scripting concepts they have learned.

Learners will be able to apply programming concepts such as data-types, selection, iteration, functions and events to scripts. Additionally, they will be exposed to the web document hierarchy such as windows and form elements, and the potential for interactivity that can be applied to those components. Prior knowledge of HTML would be an advantage before commencing this unit; however, the basics can be acquired as the unit progresses. Learners will gain an understanding of Asynchronous JavaScript and XML (AJAX) and the alternative and continually developing JavaScript Object Notation (JSON).

Increasingly web applications are becoming larger and more complex and there is demand for these sites to be accessible via mobile devices; therefore the need for client-side scripts and AJAX/JSON and JQuery will continue to grow. The Unit is relevant to learners wishing to broaden their web development and programming skills as well as increasing their knowledge of mobile web applications that are responsive and interactive.

On completion of the Unit learners will understand the need for client-side scripts, as well as developing the skills required to produce dynamic, interactive and responsive web content. They will gain an understanding of the current technologies involved with web content on the client, and also the methods of exchanging data between browser and server but the focus will be largely on scripts running on the client and the programming concepts needed to make the data exchange efficient.

Learning Outcomes

On completion of this unit the learner will be able to:

1. *Explain the necessity for client-side scripting.*
2. *Demonstrate the use of programming elements associated with client-side scripting languages.*
3. *Use client-side scripting to enhance the functionality of a web application.*

ITSFT-406-2005: Programming Concepts

Unit Level (MQF/EQF): 4

Credits: 6

Delivery Mode: Fully Face-to-Face Learning

Total Learning Hours: 150

Unit Description

This unit will provide students with a theoretical and practical knowledge of programming concepts, and how easy it can be to transition from developing a program from one programming language to another, with the main difference being the syntax and the tools used.

Through this unit, students will understand what an IDE is, and how to use it. Students will also be able to define different types of variables, such as int, string, double and so on, flow constructs, such as if or switch statements, different types of loops, such as do, while and for loop and give examples of how they can use given a specific business problem.

Through this unit, students will be exposed to practical steps in order to develop a simple windows based software, by going through the various controls available in the toolbox, understand gradually how to structure a code through the various examples to be provided, work with files, and some basic exception handling and debugging the application.

Finally, students will also be able to draw all these concepts together to write a piece of software with a GUI.

Learning Outcomes

On completion of this unit the learner will be able to:

1. *Demonstrate knowledge of the basic programming language concepts.*
2. *Explain what is and how to use an Integrated Development Environment (IDE)*
3. *Develop a simple windows application.*
4. *Explain a basic concept of exception handling and debug a simple program.*

ITMMD-406-1501: Introduction to Multimedia Design

Unit Level (MQF/EQF): 4

Credits: 6

Delivery Mode: Fully Face-to-Face Learning

Total Learning Hours: 150

Unit Description

This unit is designed to introduce the learner to the concepts and principles applied to the design and development of simple yet interactive multimedia applications. The unit will appeal to those with an interest in animation, computing, sound or graphic design.

Learners will develop a methodology of working which will take them through the stages of development from analysis and planning through to design and finally the implementation and initial testing of a multimedia product to an advanced prototype state. Learners are prepared for this by providing them with the knowledge needed to carry out this type of development. In addition, they will gain an understanding of current terminology and the wide and varied applications of multimedia.

This is a valuable unit for learners since multimedia is used everywhere from educational applications and product advertising, to games and entertainment. Sound, animation, video and graphical art are expected to be components in most applications, therefore it is important to know how and when to apply these components to enhance the user experience. The learner will be introduced to userorientated design and prototyping and also to Graphical User Interface (GUI) features and design conventions followed to encourage intuitive interaction.

Following planning and design, the learner will go on to develop a small application; they will use storyboards and mood boards to assist the planning and will learn to integrate multimedia components into the final product. The final product will be developed to an advanced prototype standard.

On completion of the Unit learners will understand the processes involved in the design and development of a small interactive multimedia application. They will be able to develop component parts such as audio, animation and graphics. They will learn about interactivity and user-orientated design, and will apply their learning to develop a small and potentially interactive prototype application.

Learning Outcomes

On completion of this unit the learner will be able to:

1. *Plan the multimedia components for a small interactive application.*
2. *Use appropriate tools and techniques to develop the design of the application.*
3. *Design the application using a user-orientated approach.*
4. *Build an advanced prototype multimedia application in accordance with the design.*

ITSFT-406-2000: Logic Programming

Unit Level (MQF/EQF): 4

Credits: 6

Delivery Mode: Fully Face-to-Face Learning

Total Learning Hours: 150

Unit Description

This unit has been designed to teach learners the basic programming techniques to build an application. It is a skills-based unit and is designed to allow the learners to understand and apply the necessary skills to create interactive applications.

This unit presents the theory and practice of programming languages in different scenarios. This is a practical unit and the focus is to introduce and revise basic programming techniques. This unit is delivered using Digital Game Based Learning techniques. This will motivate the students to learn more in a fun and interactive environment.

The first part of the course will introduce basic concepts used in programming languages such as variables, loops, functions, events, arrays and objects. After learning the basics, the students will learn how to create interactive applications using these methods.

Flowcharts are also introduced as a diagrammatic representation of algorithms in order to help learners think logically when building applications. During this unit, learners will be introduced to different flowchart symbols and techniques to build a working application.

Learners will also be introduced to debugging and testing techniques to minimise logical errors in their applications. They will be assisted to understand how to use debugging techniques such as watch on variables, breakpoints, step-in and step-out, etc.

Once leaners complete this unit, they will be ready to proceed and learn to build more advanced applications.

Learning Outcomes

On completion of this unit the learner will be able to:

1. *Plan and develop logic for an application.*
2. *Use and explain the features and techniques of a programming language.*
3. *Construct and apply algorithms to solve simple programming problems.*
4. *Show the ability to prepare an application for release.*

ITDBS-406-1502: Relational Databases

Unit Level (MQF/EQF): 4

Credits: 6

Delivery Mode: Fully Face-to-Face Learning

Total Learning Hours: 150

Unit Description

Today, every business and organization need to have some form of IT system in order to function efficiently and be able to cope with competition. Databases are therefore a necessity in order to persist the data generated on daily basis. Data retrieval from these data sources is a core component in every type of information system.

Relational Databases is a unit which is relevant to learners wishing to develop the skills required to carry out different database operations through the use of Structured Query Language (SQL). SQL is considered as the official language used by database and information system developers to manage and interrogate the information held in Relational Database Systems. The unit will introduce a number of different querying techniques to add, update, remove and retrieve data. The content of the unit is practical in nature and provides the knowledge and skills to create reliable, efficient and effective SQL commands. The learner should be able to generate reports which output all the information indicated by the user, in order to meet the business requirements.

This unit will not require the learner to have any previous knowledge of SQL. It is designed to be delivered as a continuation of Database Concepts & Design as part of the Extended Diploma in IT (Software Development) although it may also be delivered as a standalone unit.

On completion of this unit, learners will be familiar with the majority of the basic querying concepts. Learners will be able to make use of different querying techniques to handle data stored in a DBMS.

Learning Outcomes

On completion of this unit the learner will be able to:

1. *Create basic queries to manage data held in a relational database management system (RDBMS).*
2. *Use different functions within SQL to meet user requirements.*
3. *Use different querying techniques to retrieve more complex user requirements.*

ITWEB-406-1501: Website Design

Unit Level (MQF/EQF): 4

Credits: 6

Delivery Mode: Fully Face-to-Face Learning

Total Learning Hours: 150

Unit Description

Effective website design is central to successful website production. Designers need to present an appropriate image to consumers and maximize opportunities to capture and retain interest. Sites need to be accessible to all and attention also needs to be given to usability issues such as navigation to enable users to access all aspects of a site with ease. Web users will quickly navigate away from poorly designed sites.

This unit follows the development of a website from initial requirements through design, build, test and review.

Learners will develop skills in using design techniques, together with hypertext markup language (HTML) and cascading style sheets (CSS) and build an interactive website using JavaScript. Learners will prepare the site for publication on the internet. This will require learners to be confident in carrying out more advanced techniques and to have the underpinning knowledge and understanding to test functionality, ensuring the site is fully operational in different browser environments and is compliant with copyright and accessibility guidelines

The unit is relevant to learners wishing to learn and develop skills which can be used to provide website solutions in a variety of contexts.

Learning Outcomes

On completion of this unit the learner will be able to:

1. *Prepare a website with the latest mark-up language.*
2. *Design a website using the latest styling technology.*
3. *Create interactivity in the website using JavaScript and a JavaScript Framework.*
4. *Upload, test and review created website.*

ITMMD-406-2004: Introduction to Object Oriented Programming

Unit Level (MQF/EQF): 4

Credits: 6

Delivery Mode: Fully Face-to-Face Learning

Total Learning Hours: 150

Unit Description

Object-oriented programing can be seen as the tool that has enabled software to grow exponentially more complex. The object-oriented paradigm has helped engineers to better design and prototype software, to increase flexibility and also to increase the quality of the software produced.

Throughout this unit the learner will be guided to create dynamic models and experience the object-oriented paradigm through software re-use. This unit aims to integrate the diverse areas of knowledge needed to create successful multimediabased projects using an object-oriented approach. By the end of this unit the learner will appreciate that the required functionalities of a multimedia project can be represented into an object-oriented model that can subsequently be programmed.

The learner will be introduced to the basic concepts of software development and henceforth of the basic notions of object-oriented programming such as inheritance and encapsulation. Simple UML will be used a notational diagram for describing the relationships between objects. At this point the knowledge gained thus far will be used to design and implement multimedia based object-oriented applications.

Finally, learners will be guided on how to debug and test the code that they have developed through a series of testing strategies and with the assistance of the debugging tools provided by the IDE being used.

Learning Outcomes

On completion of this unit the learner will be able to:

1. *Demonstrate a good understanding of the object-oriented programming fundamentals.*
2. *Design multimedia-based applications using an object-oriented approach.*
3. *Implement multimedia-based applications using the concepts of object-oriented programming.*
4. *Resolve errors in object-oriented code through effective code evaluation and testing.*

ITSFT-406-2001: Introduction to Mobile Applications Development

Unit Level (MQF/EQF): 4

Credits: 6

Delivery Mode: Fully Face-to-Face Learning

Total Learning Hours: 150

Unit Description

Mobile applications design and production is a complex and challenging skill set. Developers require the ability to select suitable application technology and demonstrate an understanding of the benefits, cost, context, user restrictions, target device and the industry structure when developing web based applications for hand held devices. This unit will give the learner an introduction to the theory and development of web based mobile applications.

This is both a theory and practical based unit and will allow learners to demonstrate they have the necessary knowledge and understanding of mobile applications (web based and target device based) development to be able to identify the features affecting the production of applications. Learners will be given an introduction to the understanding of target device, industry restraints and conditions to gain an understanding of user experience and production requirements in the development of web based mobile device applications.

This Unit is relevant to learners wishing to further develop their knowledge of application design and development for mobile handheld devices such as tablets, smart phones and laptops.

This unit is aimed at: interface designers, graphic designers, visual designers, programmers, interactive designers and information architects.

Learners will carry out introductory evaluations of the effectiveness of mobile applications on a range of target devices and will evaluate their affecting factors, usability and the user experience.

Finally, learners should have the principal knowledge and understanding of development and should feel confident to extend their experience in the design and production for the mobile user experience.

Learning Outcomes

On completion of this unit the learner will be able to:

1. *Describe the current technology, features and uses of web based applications on mobile devices.*
2. *Design a web based application for a mobile device.*
3. *Produce a Web Based Application for a mobile device.*

ITSFT-406-1508: Server Side Scripting

Unit Level (MQF/EQF): 4

Credits: 6

Delivery Mode: Fully Face-to-Face Learning

Total Learning Hours: 150

Unit Description

This unit covers foundation topics on server side programming such as the request-response communication method and state management in web application development. The unit is practical in nature and students will be learning how to combine the basic constructs of programming (sequences, conditions, loops, arrays, functions, etc.) and interaction with HTML components (textboxes, drop-downs, grids, etc.) to create typical web applications.

The unit does not require the use of a particular server-side scripting language, and it is hence up to the instructor or the college to decide on the language most relevant to the learner's studies and industry requirements. Possible languages include, but are not limited to, PHP, JSP, ASP.NET, Python and Ruby.

The unit begins with the theory of client/server communication, with particular attention to how this applies within a web application environment. Focus is given to the stateless nature of the web, as well as HTTP requests and responses. At this stage, these technologies should be covered mostly as on overview, with focus given to the server-side component of web application development.

Following this, learners will be exposed to the syntax and structure of the selected scripting language. This includes an introduction to the sequence, selection and iteration programming structures. Learners will then be introduced to data structures, including arrays and associative arrays or maps, depending on the language chosen. Learners will then be introduced to the object-oriented development paradigm, and shown how to create classes, objects, methods and fields within the selected language.

The learners will then be introduced to the basics of front-end web application development, including the creation of HTML page content with particular attention given to HTML forms and tables. Finally, these skills will be combined with previously learnt server-side programming skills to create fully functional web applications. This also includes a brief introduction to CSS for the styling of these web applications.

By the end of this unit, learners should be able to create fully functional web applications with an HTML/CSS front-end and with a back-end using the language selected for the delivery of the unit.

Learning Outcomes

On completion of this unit the learner will be able to:

1. *Explain the client/server architecture employed by the World Wide Web, with particular reference to the stateless nature of the web and how developers work around this architecture.*
2. *Design the layout and formatting of a web application, as well as user interaction elements such as links, tables and forms using HTML, CSS and JavaScript to given specifications.*
3. *Use a server-side scripting language in conjunction with a front-end web application layout to create a fully functional web application to given specifications.*
4. *Design the structure of a basic database and connect a database to a web application for data storage.*

ITPRJ-406-2011: Project

Unit Level (MQF/EQF): 4

Credits: 6

Delivery Mode: Fully Face-to-Face Learning

Total Learning Hours: 150

Unit Description

This unit is intended to demonstrate the learner's ability to plan, develop and evaluate a small software development project. The unit provides learners with the opportunity to consolidate the knowledge and skills they have mastered in the units that form the basis of the qualification and use their creative and technical abilities to satisfy the requirement of the unit. Learners will be provided with a project brief and follow a specific project management approach to complete each stage of the project. The four stages comprise: providing a detailed analysis of the brief in the analysis stage, documenting and justifying the approach to the project in the planning stage followed by design, implementation and testing in the development stage and finally an evaluation of the product and the management of the project in general.

This unit is suitable for any learner undertaking a course in software development or computer games development. It is recommended that the brief is provided to the learner prior to the start of the project in order to allow time for familiarisation with the content and requirements. Learners should be encouraged to produce a professional standard of documentation throughout the project and maintain a record of work carried out.

Learning Outcomes

On completion of this unit the learner will be able to:

1. *Analyse a given brief relating to a software development project and produce a requirements analysis.*
2. *Produce a planning report in response to the brief.*
3. *Develop a software solution that meets the brief.*
4. *Evaluate the project to include a personal reflection and an analysis of the extent to which the solution meets the requirements of the brief.*

ITIGM-406-2103: iGaming Essentials

Unit Level (MQF/EQF): 4

Credits: 6

Delivery Mode: Fully Face-to-Face Learning

Total Learning Hours: 150

Unit Description

The aim of this unit is to provide a solid background in the domain of the iGaming Industry. Organisational standards, roles and responsibilities will also be covered. From a legal standpoint, essential terms and aspects of compliance, procedures, identification and mitigation of fraudulent activity will also be covered. Learners will also gain further insight on essential tools that are used in such organisations. This unit aims to provide learners with a detailed foundation of how the iGaming industry is organised. This unit will allow learners to examine the corporate structure; the regulations pertaining to the industry; the customer experience; the market and its players; and explore the various games that are offered. The applied approach of the unit will allow the learners to explore several scenarios, such as transaction tables from a relevant database to identify which tables portray fraudulent activity. Real-world context specific examples will also be provided through a hands on approach.

Learning Outcomes

On completion of this unit the learner will be able to:

1. *Recognise the roles and responsibilities present within an organisation.*
2. *Use essential terms and procedures deemed important to the workflow of an organisation.*
3. *Interpret the laws and regulations associated with the standards and compliance of an organisation.*
4. *Identify and mitigate fraudulent activity within the iGaming Sector.*

CDIGM-406-2104: Advanced Mathematics

Unit Level (MQF/EQF): 4

Credits: 6

Delivery Mode: Fully Face-to-Face Learning

Total Learning Hours: 150

Unit Description

The aim of this unit is to provide learners with theoretical and practical knowledge of advanced mathematical concepts. It gives learners a strong foundation of how the core mathematical concepts and decisions within the iGaming industry are tackled. The main content areas covered in this unit are: combinatorics, probability, statistics, distributions, sets, vectors and matrices, game theory and games of chance. Such areas are considered essential for individuals pursuing a career in game development or in data science.

In this unit, learners will become familiar with the underpinning techniques related to solve various mathematical and statistical problems. These techniques form the basis of the core advanced mathematical concepts. Learners will carry out practical tasks in the form of exercises and worksheets and present these to the assessor who can provide feedback and advice on the success of each task. Such exercises and worksheets will be made available for each learning outcome.

Learning Outcomes

On completion of this unit the learner will be able to:

1. *Apply the foundations of combinatorics and probability.*
2. *Recognise the application and uses of statistics and distributions.*
3. *Perform numeric operations through the use of sets, vectors and matrices.*
4. *Calculate odds, through the use of Game Theory and Games of Chance.*

ITIGM-406-2105: Advanced Digital Marketing

Unit Level (MQF/EQF): 4

Credits: 6

Delivery Mode: Fully Face-to-Face Learning

Total Learning Hours: 150

Unit Description

This unit focusses on providing learners with the theoretical and practical knowledge on the importance of digital marketing and its value within an organisation. It also provides background knowledge of the several strategies used for digital marketing. Moreover, the different types of digital marketing, customer lifecycle, content marketing, social media marketing, affiliate marketing, native advertising, email marketing and online public relations will also be covered. From a practical standpoint, the unit also explores various tools available for different digital marketing strategies related to the iGaming labour market. Finally, learners will gain knowledge on how to draft a digital marketing plan by understanding how to set strategic objectives, key performance indicators (KPIs), return on investment (ROI) measures, and budget planning.

Learning Outcomes

On completion of this unit the learner will be able to:

1. *Assess the customer lifecycle and the importance of digital marketing.*
2. *Identify and utilise the different types of digital marketing strategies to address specific goals.*
3. *Utilise the tools available for the different digital marketing strategies.*
4. *Create a digital marketing plan and strategy for an organization.*

ITIGM-406-2107: Advanced Data Analytics and Development

Unit Level (MQF/EQF): 4

Credits: 6

Delivery Mode: Fully Face-to-Face Learning

Total Learning Hours: 150

Unit Description

The aim of this unit is to provide learners with further insight on a working role in data analytics within an iGaming company. The unit will cover fundamental concepts and methodologies associated with data analysis. Core mathematical and statistical knowledge together with workflows will be addressed to produce effective data analytics. Learners will also be introduced to common tooling and applications which will allow them to maximise productivity in this domain. This unit aims to provide learners with a detailed foundation of how data analysis within the iGaming industry is tackled. The main themes that will be covered in this unit are: Types of Data Analysis; The Phases of Data Analysis; Data Analytics Tools and Skills; Foundational Data Analytics; Mathematics and Statistics; and Data Analytics Methodologies and Workflows. In addition, the use of SQL, Python and R together with off the shelf corporate business intelligence (BI) tools will also be covered. These are data visualisations tools that almost every data analyst needs at the workplace especially within the iGaming labour market.

Learning Outcomes

On completion of this unit the learner will be able to:

1. *Use the primary types of data analysis and the phases within a data analysis process.*
2. *Apply foundational data analytical, mathematical and statistical concepts for data gathering and processing.*
3. *Conduct insightful analysis and results interpretation using data analysis tooling and techniques.*
4. *Evaluate outcomes for a case study, using data analytical methodologies and workflows.*

ITIGM-406-2106: Web Optimisation

Unit Level (MQF/EQF): 4

Credits: 6

Delivery Mode: Fully Face-to-Face Learning

Total Learning Hours: 150

Unit Description

This unit focusses on providing learners an understanding on how to identify and enhance the performance and searchability, and employ web-security techniques to improve user experience and accessibility. It also focusses on website optimisation to conform with multiple form factors. Learners will explore each of these concepts and will gain further insight on the inherent problems that exist within websites. This unit aims to provide learners a practical knowledge on the relevant tools that exist for addressing such issues. Concepts such as search engine optimisation (SEO), conversion rate optimisation (CRO), and mobile browsing optimisation will be covered.

From a practical standpoint, learners will utilise various tools in order to improve page load, user experience (UX), search ranking, and web traffic. Such a hands-on approach forms the basis of the core web optimisation concepts. Learners will carry out practical tasks and present these to the assessor who will provide feedback and advice on the success of each task.

Learning Outcomes

On completion of this unit the learner will be able to:

1. *Examine the importance of website optimisation, whilst utilising tools for improving website speed and performance.*
2. *Optimise search traffic by applying search engine optimisation (SEO) and conversion rate optimisation (CRO).*
3. *Employ web-security techniques for an improved user experience and accessibility.*
4. *Optimise websites to conform with multiple form factors.*

CDKSK-402-2104: Community Social Responsibility

Unit Level (MQF/EQF): 4

Credits: 2

Delivery Mode: Fully Face-to-Face Learning

Total Learning Hours: 50

Unit Description

This unit focuses on Community Social Responsibility and provides an opportunity for learners to better understand themselves and the others and to establish goals in life. Community social responsibility enables learners to understand their strengths and areas for improvement and prepares them for life, employment and to become active citizens in society.

Moving away from traditional delivery of other units, learners will be empowered to take ownership of their learning process. Hence, community social responsibility will be delivered through a combination of workshops, small-group sessions with mentors and various opportunities to reflect.

The set of sessions will tackle community social responsibility skills and will mostly focus on the self, the ability to work independently and important values in life. The second set of sessions will address interpersonal skills and will focus on working with others, dealing with diversity and conflicts. Furthermore, at the end of the sessions, the learners will be introduced to the importance of active citizenship in life.

Learning Outcomes

On completion of this unit the learner will be able to:

1. *Identify personal goals through self-reflection.*
2. *Evaluate how collaboration with others can be more effective.*
3. *Explain the importance of giving and receiving feedback.*
4. *Contribute actively to make a difference in society.*

CDKSK-404-1915: Employability and Entrepreneurial Skills

Unit Level (MQF/EQF): 4

Credits: 4

Delivery Mode: Fully Face-to-Face Learning

Total Learning Hours: 100

Unit Description

This unit complements the vocational and key skill units at Level 4 and provides an opportunity for learners to enhance their employability and entrepreneurial skills.

Quite often, learners tend to focus most on technical skills and competences required in a certain trade which enable them to access employment. On the other hand, employers expect employees to be appropriately skilled to follow instructions, take initiative, work effectively in a team, take a lead when necessary and more. In view of this the unit starts with an introduction to the 4th industrial revolution and proceeds to the transversal skills necessary to find employment, retain employment and advance at the place of work. Learners will be able to highlight their strengths and identify the areas that require improvement.

The rest of the unit focuses on entrepreneurial skills, a skill which is one of the most important transversal skills identified by UNESCO. Learners are introduced to methods which can be used to generate new and innovative business ideas and methods which help them evaluate ideas and choose the most feasible. Furthermore, learners will cover the various stages of product and/or service development, including market analysis, processes, pricing strategy, promotion and resources required.

Learners will work in a small team and by the end of the unit they will have the opportunity to develop a business idea which is commercially viable. Furthermore, they will present the idea to prospective investors/stakeholders.

Learning Outcomes

On completion of this unit the learner will be able to:

1. *Understand the employability skills required for Industry 4.0;*
2. *Use idea generation techniques to come up with ideas and evaluate chosen ideas;*
3. *Understand the various stages of product and/or service development;*
4. *Work in a team to develop a business idea which is commercially viable.*

CDKSK-406-2001: English

Unit Level (MQF/EQF): 4

Credits: 6

Delivery Mode: Fully Face-to-Face Learning

Total Learning Hours: 150

Unit Description

The main objective of this unit is to prepare students to use the English language to understand, analyse, organise and communicate specific technical knowledge by inferring meaning from, and using, embedded information, being able to evaluate information critically and communicate through different types of texts, as required by various but often specific technical contexts within the selected field of study.

The emphasis is on the processes needed to transition from use of the English language in General Education to that required for access to Higher Education.

In particular, L4 Key Skills English is targeted at learners who have completed Foundation College programmes (Levels 1 to 3) and seek to further their studies at Technical or Degree level.

In this respect, this unit recognises the necessity to meet two linguistic demands at this threshold level; strengthening students' linguistic competences to be able to communicate more specifically within their vocational area and stream and to prepare them for more rigorous academic thinking, research and writing as necessitated by degree courses.

Being introduced at this level are core and elective unit outcomes. Reading and writing outcomes are core components in this syllabus while listening and speaking are elective components. Every L4 programme must deliver the two core outcomes and any one of the two elective learning outcomes. The elective criteria to be assessed cannot be selected from and across both outcomes.

Learning Outcomes

On completion of this unit the learner will be able to:

1. *Read technical texts effectively to improve knowledge of the subject area;*
2. *Understand information presented orally in the form of recordings, or talks, discussions, seminars, interviews or presentations;*
3. *Demonstrate own understanding of the subject matter via oral presentation, mock interviews or similar oral delivery;*
4. *Write a research paper or technical report demonstrating cohesion, structure and appropriate style.*

CDKSK-406-2007: Mathematics

Unit Level (MQF/EQF): 4

Credits: 6

Delivery Mode: Fully Face-to-Face Learning

Total Learning Hours: 150

Unit Description

This unit provides a framework for students to develop mathematical thinking skills further to the level 3 unit specification to solve problems related to real-life situations. Students also develop skills, attributes and knowledge that contribute to their personal growth and effectiveness within their training and work environment and also within the community.

The unit is designed to adapt for the needs of a particular field of study (business & finance or engineering & transport and others).

To reach this goal the unit was divided into four learning outcomes which are related to statistics, graphical representation, game theory and finance. Through these different areas students will be able to develop the effective skills for information processing, reasoning, evaluation creative thinking and enquiry, all fundamental skills for the problem solving process. This will prepare students in applying and evaluating a range of strategies to solve real-life problems. This is in fact shown throughout the unit content where the first two learning outcomes and the last two learning outcomes combine together to use all the knowledge, understanding applications and analysis learned throughout each learning outcome to synthesis and evaluate a real-life context. Through this unit the learner will also learn to present and communicate results and conclusions effectively.

On successful completion of the unit the learner will be equipped with mathematical thinking skills which make them aware of and understand their thought process, to reassess and identify areas for development. Students learn to evaluate, reflect about their strategies, understand and verify results to solve problems. These skills will equip students with managerial skills, to further their studies and for work employability.

Learning Outcomes

On completion of this unit the learner will be able to:

1. *Demonstrate visual and logical techniques in evaluating graphical representations and communication skills in presenting the results effectively;*
2. *Apply information processing skills to solve problems in a relevant statistical context;*
3. *Demonstrate evaluation and communication skills in solving and presenting problems applied to costing methods and techniques;*
4. *Apply creative thinking skills and demonstrate evaluation skills to solve problems in a relevant (game theory) context.*