

# School of Science

Winter/First Semester Modules  
Spring/Second Semester Modules

September – December  
January - May



**Academic Advisors School of Science**

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# ECTS SUBJECT LISTINGS

This is a provisional guide and modules in this guide are subject to change before the commencement of the academic year 2015-16.

## School of Science

### Bachelor of Science (HONS) in ENTERTAINMENT SYSTEMS

<b>Year One</b>	
<b>Semester 1</b>	<b>Semester 2</b>
Foundation of Computing	Programming Fundamentals 2
Programming Fundamentals 1	Computer Architecture
Web Development	Operating systems
Discrete mathematics	Applied Calculus
The Entertainment Industry	Narrative Construction
High-level Game development	Music Skills
<b>Year Two</b>	
<b>Semester 3</b>	<b>Semester 4</b>
Algorithms	Data structures
Data Communications	Databases
Information Modelling	Internetworking
Digital Audio Production (E)	Sound Engineering (E)
Physics of sound(E)	Multimedia Development (E)
Music Theory (E)	Applied Music Skills (E)
High level Game Development 3D (E)	Game Development 1 (E)
Physics for Game development (E)	Console Game Development 1 (E)
Mathematical method (E)	Digital Graphic Design (E)
<b>Year Three</b>	
<b>Semester 5</b>	<b>Semester 6</b>
Component Development	Work Placement (Flexible Semester)
Cryptography	
Preparation for Flexible Semester	
Advanced Recording Techniques (E)	
Media Processing (E)	
Sound Synthesis & Sampling (E)	
Game Development 2 (E)	
Network & Multiplayer Games (E)	
Console Game Development (E)	

<b>Year Four</b>	
<b>Semester 7</b>	<b>Semester 8</b>
Distributed Systems	Project Implementation
Project 1	Advanced media Techniques
Sequencing Tools (E)	Sound Design & Synchronisation
Music Perception & Psychology (E)	Game Engine Development 2
Mathematics for Game developers (E)	Game AI
Game Engine development 1 (E)	3D Multimedia Animation
3D Graphics Applications (E)	Software Signal Processing
Game Development 2 (E)	Photography & Video
Sound Synthesis & Sampling (E)	
Console Game Development 2 (E)	
Live performance Technology (E)	

## Bachelor of Science in **SOFTWARE SYSTEM DEVELOPMENT**

<b>Year One</b>	
<b>Semester 1</b>	<b>Semester 2</b>
OO Programming Fundamentals	OO Programming Principles
Systems Analysis Fundamentals	Systems Implementation Fundamentals
Web Programming	Client Side programming
Computer Essentials	Statistical Analysis
Mathematics	Business processes
Communications	Critical Thinking & Learning
<b>Year Two</b>	
<b>Semester 3</b>	<b>Semester 4</b>
Data Structures	Event Driven Programming
Database Fundamentals	Database Systems
Software Engineering	
Human Computer Interaction	Server Side Programming
Network Fundamentals	Systems and Information
Stream Electives*	Internetworking
	Stream Electives
<b>Year Three</b>	
<b>Semester 5</b>	<b>Semester 6</b>
Flexible Semester	GUI Development
	Advanced Databases
	User Centred Design
	Organisational IS
	Security Principles

	Stream Electives
	*In semester 3, Students choose a stream option and choose elective from that stream in subsequent semesters. Electives options currently include: German, French, Psychology, and Enterprise.

## Bachelor of Science in SOFTWARE SYSTEM DEVELOPMENT

Year One	
Semester 1	Semester 2
Project Analysis & Design	Construction & Testing
Advanced Database System	Dynamic Web Development
Web Server programming	Software Frameworks
IT Security	Business Intelligence
Inter Organisation Information System	Database Administration
Social Psychology (E)	Organisational Psychology (E)
IS Project Management (E)	Software Business (E)
French (E)	French (E)
German (E)	German (E)

## Bachelor of Science in INFORMATION TECHNOLOGY

Year One	
Semester 1	Semester 2
OO Programming Fundamentals	OO Programming Principles
Information Technology System	IT Applications
Systems Analysis Fundamentals	Web design
Visual Communication	Statistical Analysis
Mathematics	Critical Thinking & Learning
Documentation management	
Year Two	
Semester 3	Semester 4
Data Structures	Event Driven Programming
Network Fundamentals	Internet working

Database Fundamentals	Database Systems
Multimedia Fundamentals	Multimedia Development
Mathematical Modelling	Management Science
Web Applications	Meta - information
<b>Year Three</b>	
<b>Semester 5</b>	<b>Semester 6</b>
Flexible Semester	Security Principles
	Systems development
	GUI Development
	MIS Fundamentals
	Hypermedia Systems
	Advanced Database

## Bachelor of Science (Honours) in **INFORMATION TECHNOLOGY**

<b>Year One</b>	
<b>Semester 1</b>	<b>Semester 2</b>
Project Analysis & Design	Project Construction & Testing
Data Warehousing	Web service Development
InterOrg Information System	Network Technologies
Web Retrieval Systems	Data Administration
IS Project management	Business Intelligence
E-Learning Strategies	Software frameworks
	Cloud Infrastructure
	German B1.3

## Bachelor of Science in **MULTIMEDIA APPLICATIONS DEVELOPMENT**

<b>Year One</b>	
<b>Semester 1</b>	<b>Semester 2</b>
Mathematics for Computing	Mathematics Modelling and Statistics
Computer Essentials	Introduction to Software Engineering
OO Programming Fundamentals	OO Programming Principles
Communication Skills	Critical Thinking & Learning
Basic Graphic Design	Music Skills
Multimedia	Multimedia Web design

<b>Year Two</b>	
<b>Semester 3</b>	<b>Semester 4</b>
Digital audio production	Software Engineering (OOD)
Database Fundamentals	Database Systems
Server Side Scripting	Multimedia data Structures
Human Computer Interaction	Convergent media Technologies
Motion Graphics	Traditional Graphic design
Web Development	Mathematics
<b>Year Three</b>	
<b>Semester 5</b>	<b>Semester 6</b>
Flexible Semester	Security Principles
	Networking Systems and Concepts
	Multimedia programming
	eLearning and Accessibility
	Digital graphic design
	3D and Video

## **Bachelor of Science (Honours) in MULTIMEDIA APPLICATIONS DEVELOPMENT**

<b>Year One</b>	
<b>Semester 1</b>	<b>Semester 2</b>
Management	Enterprise development
Multimedia database development	Advanced Multimedia Database Concepts
Project Analysis and design	Project Construction and Testing
Web Application Development	Practical Graphic design (E)
	Instructional design (E)
Design for Learning (E)	3D Multimedia Animation (E)
Exploration of graphic design (E)	Practical Game Design(E)
3D graphics Applications (E)	Photography & Video (E)
Conceptual game Design (E)	Digital Marketing Skills (E)
Security principles (E)	Graphic Design (E)
IT Security (E)	Apple Macintosh Programming (E)
Web Server Programming(E)	

# Department of Computing, Mathematics & Physics

## Programme: BSc (Hons) in Applied Computing – Year 4

**Programme Code : KCOMP\_B\_Y4**

**Module : Artificial Intelligence**

**Offered: Semester 7**

**Credits: 5**

### **Objectives**

The purpose of this module is to introduce the student to the fundamental concepts of Artificial Intelligence. The student will be introduced to symbolic A.I., knowledge representation, search techniques and an A.I. programming paradigm.

On completion of this subject, the student should be able to:

- Understand the various mechanisms for representing knowledge.
- Comprehend the significance and need for search and heuristic techniques in A.I.
- Differentiate and apply relevant A.I. Architectures to problem domains.

**Assessment method: 100% Final Exam**

**Programme Code: KCOMP\_B\_Y4**

**Module: Embedded Operating Systems**

**Offered: Semester 7**

**Credits: 5**

### **Objectives:**

This module covers the design and development of control system software consisting of a number of cooperating tasks running on a real-time operating system. The module will use OSEK, a standard automotive operating system, as a case study. OSEK is used as the core operating system of the AUTOSAR vehicle architecture

On completion of this subject, the student should be able to:

- Understand the role of a real-time embedded operating system and how it schedules tasks
- Describe the various services provided by the OSEK operating system, such as timers, event handling and interprocess communications
- Design, develop and debug applications on OSEK.
- Understand the design factors that effect application performance on a real-time operating system

**Assessment Method:**

**50% Continuous assessment**

**50% Final Exam**

**Programme Code: KCOMP\_B\_Y4**  
**Module: Model Bases Development**  
**Offered: Semester 7**  
**Credits: 5**

**Objectives:**

This laboratory bases module will involve a comprehensive study of Simulink®, an environment for multi domain simulation and Model-Based Design for dynamic and embedded system. Simulink provides the student with an interactive graphical environment and a customizable set of block libraries that allow the design, simulation, implementation, and testing of a variety of time-varying systems. A number of case studies related to intelligent automotive control will be examined

On completion of this subject, the student should be able to:

- Model application functionality in Simulink®.
- Carry out model based testing
- Generate a target implementation of Simulink model
- Display work carried out in the design, testing and implementation of a Simulink model by means of a poster presentation.

**Assessment Method: 100% Continuous assessment**

## **Programme: BSc (Hons) in Applied Computing – Year 3**

**Programme Code: KCOMP\_B\_Y3**  
**Module: Games Development II**  
**Offered: Semester 5**  
**Credits: 5**

**Objectives:**

This module deepens the student's knowledge of the techniques used in the development of digital games, with respect to games design and implementation techniques in the context a wider range of games genres.

On completion of this subject, the student should be able to:

- Critically assess the design of a selected range of game titles, with respect to game play and game balance.
- Create reasonably balanced game in a subset of the genres for which tile-based presentations are effective.
- Create tools for the creation of map-based game worlds.
- Create sound effects and soundtracks for use in above games.

**Assessment method:**

**50% Final Exam,**  
**50% continuous assessment**



**Programme Code: KCOMP\_B\_Y3**  
**Module: Networking and MultiPlayer Games**  
**Offered: Semester 5**  
**Credits: 5**

**Objectives:**

This module will introduce students to the core concepts in network design and data communications considerations for MultiPlayer gaming environments. The module examines networking requirements, current limitations and proposed solutions. The module aims to provide students with a practical approach for dealing with these issues

On completion of this subject, the student should be able to:

- Demonstrate an understanding of the networking communication issues involved in the design of networked games
- Select and apply suitable techniques and tools to design and implement well-engineered games software to be executed across a network game communications
- Understand the main Quality of Service concepts relating to network game communications
- Apply best practices in the design, configuration, management and maintenance of a secure VoIP network.

**Assessment Method:**

**50% Continuous assessment**  
**50% Final Exam**

**Programme Code: KCOMP\_B\_Y3**  
**Module: Wireless Communications**  
**Offered: Semester 5**  
**Credits: 5**

**Objectives:**

The aim of this module is to introduce the fundamentals concepts underlying current development in mobile communication systems and wireless computer networks. Having introduced student to routing, switching and internetworking (semester 5), this module will cover current wireless systems and standards and examines the technologies facilitating such networks. It provides students with the appreciation of the application, design and implementation of such networks.

On completion of this subject, the student should be able to:

- Describe, compare and contrast common wireless technologies, associated standards and regulatory bodies
- Configure and install wireless access points, bridges, adapters, and antennae
- Describe and understand wireless communication channels and associated system models.
- Describe WLAN RF principles (antennae, gain/loss, refraction/reflection)
- Identify wireless security threats and vulnerabilities And implement appropriate security measures (e.g.WPA,LEAP,EAP and 802.1x technologies).
- Troubleshoots wireless installations and configurations.
- Describe cutting edge developments in wireless, mobile and cellular communications technology.

**Assessment Method:**

**50% Continuous assessment**  
**50% Final Exam**

## **Programme: BSc in Software Systems Development –Year 2**

**Programme Code: WD Year 2 - Level 6**

**Module: Database Fundamentals**

**Course & Programme Code:**

**Offered: Semester 3**

**Credits: 5**

### **Objectives:**

This module will introduce the student to the principles and practice of relational database systems including the Database Management Systems aspects. The student will gain competence in Entity Relationship modelling and normalisation techniques involved in the analysis and design phases of the software development lifecycle. They will gain experience in the design and implementation of a practical database system.

On completion of this subject, the student should be able to:

- Discuss the role of a DB and DBMS, the components of the DBMS, and the differing roles in the DB environment.
- Draw Entity Relationship (ER) diagram from an application problem and reproduce this diagram into a set of relations, which are ready for database implementation.
- Convert unnormalised relations into a set of normalised relations through the rules of normalisation which adhere to relational data model principles
- Gain an understanding of the physical database design process, its objectives and deliverables.
- Design and implement a database application.

**Assessment method: 50% Final Exam, 50% continuous assessment**

**Programme Code: WD Year 2**

**Module title: HCI**

**Offered: Semester 4 – Level 7**

**Credits: 5**

### **Brief Description of Module**

This module studies the ways in which people interact with computers and to what extent computers are or are not developed for successful interaction with human beings. Historically and with some exceptions, computer system developers have not paid much attention to computer ease-of-use. Many computer users today would argue that computer makers are still not paying enough attention to making their products "user-friendly." One important HCI factor is that different users form different conceptions or mental models about their interactions and have different ways of learning and keeping knowledge and skills (different "cognitive styles" as in, for example, "left-brained" and "right-brained" people). In addition, cultural and national differences play a part. Another consideration in studying or designing HCI is that user interface technology changes rapidly, offering new interaction possibilities to which previous research findings may not apply. Finally, user preferences change as they gradually master new interfaces.

### **Learning Outcomes**

On successful completion of this module a student will be able to:

- Demonstrate an understanding of the underlying issues and principles of user interface design
- Understand, at a fundamental level, the links between HCI and human cognitive factors.
- Explain the benefits and limitations of involving users in the user interface design process
- Recognise the benefits associated with the use of design guidance and the issues involved in the practical use of design guidelines



**Programme Code: WD Year 2**  
**Module title: Server Side Programming – Level 7**  
**Offered: Semester 4**  
**Credits: 5**

**Learning Outcomes:**

Building on existing programming and dynamic web development skills, this module will introduce the concept of server side programming in the context of Web Application Development. The student will learn how to write server side scripts and to build database driven web sites.

On completion of this course the student should be able to:

- Create web pages with a server side scripting language such as PHP or JSP.
- Understand what is involved in setting up and building a database-driven web site.
- Integrate database content in web pages.
- Create web pages with asynchronous server side processing.

**Assessment Method: 100% Continuous Assessment**

**Programme Code: WD Year 2**  
**Module title: Event Driven Programming Level 7**  
**Offered: Semester 4**  
**Credits: 5**

**Learning Outcomes:**

This module will instruct the student in web programming techniques. It will illustrate web programming and equip the student with the knowledge to program for the web with confidence.

On successful completion of this module a student will be able to:

- LO1. Apply containers and layouts to produce simple GUI Java applications.
- LO2. Describe the fundamentals of Java's graphical rendering system.
- LO3. Create applications that use low-level on-screen graphics.
- LO4. Create simple Java applets.
- LO5. Create GUI applications that use Java Swing components for input and output.
- LO6. Describe Java's event handling model.
- LO7. Describe the use of basic multi-threading in Java.
- LO8. Develop thread-based Java applications.

**Assessment Method: 100% Continuous Assessment (Online Assessment 40%, 3 Practical 20% each)**

**Programme Code: WD Year 2**  
**Module title: Marketing in IT Industries - Level 7**  
**Offered: Semester**  
**Credits: 5**

**Learning Outcomes:**

The aim of this module is to introduce the fundamentals of marketing generic and bespoke high technology products and services. On successful completion of this module a student will be able to:

- Demonstrate an understanding of the role of marketing in software development.
- Conduct marketing research pertaining to a high technology product or service.
- Describe the role of internet marketing in the high technology marketing mix.
- Demonstrate an understanding of the use of software technologies in marketing high technology products.

**Assessment Method: 100% Continuous Assessment**

**Programme Code: WD Year 2**  
**Module title: Systems and Information - Level 7**  
**Offered: Semester 4**  
**Credits: 5**

**Learning Outcomes:**

This module will enable the student to appreciate systems philosophy and key systems concepts, to appreciate the key concepts associated with information, data and knowledge and to relate systems and information to each other in practice.

On successful completion of this module a student will be able to:

- Understand the distinction between data, information and knowledge.
- Describe and evaluate information quality
- Describe the components of information systems
- Explain the activities involved in information systems development and use.
- Understand how information systems can assist in communication and collaboration
- Identify the key societal issues regarding information systems
- Describe the security and privacy issues involving the use of information systems

**Assessment Method:           50% Final Exam, 50% continuous assessment**

**Programme Code: WD Year 2**  
**Module title: Database Systems**  
**Offered: Semester 4**  
**Credits: 5**

**Brief Description of Module**

In this module, the student builds on the knowledge gained in Database Fundamentals. The student is exposed to advanced data modelling techniques.

**Learning Outcomes:**

On successful completion of this module a student will be able to:

- Demonstrate the ability to model more complex applications using advanced data modelling concepts.
- Recognise and explain the important issues when administering an enterprise level database and suggest standard techniques to handle those issues.
- Understand the fundamentals of distributed databases.
- Identify and assess the various vulnerabilities a database may be subjected to.
- Construct SQL statements, which would allow for the creation of a relational database tables and manipulation of the data within those tables.

**Assessment Method:           50% Continuous Assessment 50% Final Exam**

**Programme Code: WD Year 2 – Level 7**

**Module title: Internetworking**

**Offered: Semester 4**

**Credits: 5**

**Learning Outcomes:**

The aim of this module is to deepen the learner's understanding of networking concepts in the context of internetworking. The module builds on fundamental networking concepts already studied and extends on that knowledge by examining wide area network concepts, wireless communications and internet protocols. It progresses to network applications and their implementation details.

*On completion of this course the student should be able to:*

- Discuss the Internet Protocol addressing scheme.
- Explain the technique used for IP encapsulation.
- Compare and contrast IP version 4 and Internet Protocol version 6 (IPv6).
- Explain how network application programs use protocol software.
- Explain how wireless communications operate.
- Explain the basics of network management software.
- Describe the basic techniques used in network security.
- Extend the knowledge of concepts through independent learning.

**Assessment Method: 50% Continuous Assessment 50% Final Exam**

**Programme Code: Year 2 – Level 6**

**Module title: Network Fundamentals**

**Semester 3**

**Brief Description of Module:**

The aim of this module is to introduce the learner to the fundamental concepts of networking in a bottom-up manner, beginning with the basics of how data is encoded and transmitted.

**Learning Outcomes:**

On completion of this course the student should be able to:

- Describe the method by which data is transmitted, using labelled diagrams to support the description.
- Define what is meant by the concept of packets and frames and include simple diagrams
- Discuss the role of protocols and layering in the structure of a communication system.
- Compare and contrast the mechanisms used for extending the LAN

**Assessment Methods:**

- 50% Final Examination
- 50% Continuous assessment

**Programme : Year 2 – Level 7**  
**Module title: French Level B1.4**  
**Semester 4**

**Brief Description of Module:**

This module aim to:

- Give the student an understanding of the main points of clear standard in put on familiar matters regularly encountered in work, school, leisure etc;
- Enable the student to deal with most situations likely to arise whilst traveling in an area where the language is spoken
- Train the student to perform and react to a wide range language exponents in a neutral register
- Rain the student to recognize the salient politeness conventions and act appropriately

**Learning Outcomes:**

1. Oral Production

The learner is expected to be able to:

- Sustain a monologue (putting a case) and develop an argument well enough to be followed without difficult most of time.
- Exchange, check and confirm accumulated factual information on familiar routine and non-routine matters within his/her field with some confidence
- Exploit a basic repertoire of language and strategies to help keep a conversation or discussion going; summarize the point reached in a discussion and so help focus the talk.

2. Written production

The learner is expected to be able to:

- Write a simple essays on topics of interest:
- Summarize shorter description and argumentative articles and write his / her opinion about a short story, article, talk, discussion, interview or documentary

3. Aural Reception (listening)

The learner is expected to be able to:

- Generally follow the main point of extended discussion around him/ her provided speech is clearly articulated in standard dialect;

4. Visual Reception (Reading)

The learner is expected to be able to:

- Scan longer texts in order to locate desired information and gather information from different texts in order to fulfil a specific task.

**Assessment Methods:**

- 100 % continuous Assessment

**Programme Code: WD Year 2 – Level 6**  
**Module title: German Level A1**  
**Semester 3**

**Brief Description of Module:**

This module aim to:

- Enable the student to understand and use familiar everyday expression and very basic phrases aimed at the satisfaction of needs of a concrete type;
- Train the student introduce him/herself and others
- Teach the student to ask and answer questions about personal details such as where he/she lives, people he/she knows and things he /she has;

## Learning Outcomes:

1. Spoken production and Interaction with attention to phonological differences between the learner's own language and the target language, the learner is expected to be in a position to:

- Produce simple, mainly isolated phrases about themselves, other people and places
- Make an introduction and use socio-linguistically appropriate basic greeting and leave-taking expression, ask how people are and react to this
- Make and respond to invitations, suggestions and apologies;
- Handle numbers and quantities; ask about things and make simple transactions in shops , post offices, banks and restaurants.

### 2. Writing

The learner is expected to be able to:

- Write simple isolated phrase and sentences about himself/herself and imaginary people, where they live and what they do;
- Write a short post card;
- Write a series of simple, phrases and sentences about their family, living conditions, current or most recent job.

### 3. Listening

The learner is expected to be able to:

- Understand everyday expressions aimed at the satisfactions of simple needs of a concrete type of delivered directly to him/her in clear, slow and repeated speech;
- Understand instructions addressed carefully and slowly to him / her and follow short simple directions

### 4. Reading

The learner is expected to be able to:

- Understand very short simple texts a single phrase at a time, picking up familiar names, word and basic phrases and rereading as required;
- Follow short simple directions;

### 5. Intercultural Competence

The learner is expected to be able to:

- Identify basic cultural differences and similarities between the products and practices of his/her own and the target culture.
- Understand and use some of the skills needed to communicate with people who have different beliefs, values and ways of behaving;

## Assessment Methods:

100 % Continuous assessment

**Programme Code: WD Year 2 – Level 7**

**Module title: German Level A2**

**Semester 4**

## Brief Description of Module:

This module aim to:

- Enable the student to understand sentences and frequently used expressions related to areas of most immediate relevance, for example very basic personal and family information, shopping, local geography and environment
- Allow the student to communicate in simple and routine tasks requiring a simple and direct exchange of information on familiar and routine matters.



## **Learning Outcomes:**

### 1. Spoken production and Interaction

With attention to the phonological features of the target language, the learner is expected to be in a position to:

- Give a short rehearsed basic presentation on a familiar subject and answer straightforward follow up questions if he/ she can ask for repetition and if some help with the formulation of his/her reply is possible;
- Say what he/she likes and dislikes

### 2. Writing

The learner is expected to be able to:

- Write a series of simple phrases and sentences linked with simple connectors like “and” “but” and “because”
- Write a short simple formulaic notes relating to matters of immediate need;
- Write very simple personal letters expressing thanks and simple apologies;

### 3. Listening

The learner is expected to be able to :

- Generally identify the topic of discussion between native speakers around him/her when it is conducted slowly and clearly;
- Understand the main point in short, clear simple messages and announcements;

### 4. Reading

The learner is expected to be able to:

- Understand short simple texts containing the highest frequency vocabulary terms;
- Find specific predictable information in simple every day materials;

### 5. Intercultural Competence

The learner is expected to be able to:

- Use formal and informal ways of addressing people, depending on the relationship and/or context
- See some of his/her own culture’s products and practices as they might be seen by people from others cultures;
- Compare some aspects of the other culture’s products and practices with his/her own.

## **Assessment Methods:**

100 % Continuous assessment

**Programme Code: WD Year 2 – Level 6**  
**Module title: Introduction to Psychology**  
**Semester 3**

## **Brief Description of Module:**

This module aim to:

Develop an appreciation of how psychology can be used to understand human behaviour.  
Introduce student to main theories, concepts and ideas used within psychology.

## **Learning Outcomes:**

On completion of this course the student should be able to:

1. Explain how psychology can be used to understand human behaviour.
2. Describe the various factors which influence human behaviour
3. Demonstrate an understanding of the different areas of psychology and their relationship to human behaviour

**Assessment Methods:** 100% Final Exam

**Programme Code: WD Year 2 – Level 7**  
**Module title: Introduction to Social Psychology**  
**Semester 4**

**Brief Description of Module:**

This module aims to:

- Introduce students to the main concepts and ideas in social psychology
- Provide students with an understanding of how the social environment can influence human emotions, cognitions and behavior
- Develop the students' abilities to apply these ideas to modern

**Learning Outcomes:**

On Completion of this course the student should be able to:

- Displays an appreciation of the contribution of social psychology to understanding human behavior.
- Demonstrate an understanding of social psychological theories and concepts
- Discuss the influence of the social environment on human behavior

**Assessment Methods:**

100% Final Exam

**Programme: BSc( Ordinary) in Software Systems Development – Year 3**

**Programme Code: \_Y3**

**Module: Advanced Databases- Level 7**

**Offered: Semester 6**

**Credits: 5**

**Objectives:**

This module builds upon the knowledge gained in the Database Systems module. The primary aim of this module is to expose the student to complex database issues and problems and to provide students with the knowledge and technical ability to solve those problems. The module will also provide the student with the necessary skills to make critical decisions in regards to database design, implementation, maintenance, conversion and testing in both a traditional and a distributed environment.

On completion of this subject, the student should be able to:

1. Be proficient in SQL and subsequently develop a database solution.
2. Competently interact with a commercial database environment and its related components.
3. Understand the role of transaction management and to deploy suitable techniques to support this concept.
4. Provide an implementation plan for a database solution and critically assess a typical database solution.
5. Understand the issues involved in Object Oriented Database solutions.
6. Understand the issues involved in a Distributed Database environment.
7. Understand the issues involved in Multimedia & Internet Database solutions.

**Assessment Method: 50% Continuous Assessment 50% Final Exam**

**Programme Code: Year 3**  
**Module title: Security Principles - Level 7**  
**Offered: Semester 6**  
**Credits: 5**

**Learning Outcomes:**

This module provides an introduction to IT Security. The emphasis is on the fundamentals of security, including the nature of threats and services that can be put in place to address these threats. Cryptographic techniques, that underpin many security mechanisms, are also covered.

*On completion of this course the student should be able to:*

- Describe the various security services that can be provided to an organisation
- Understand the nature of threats and attacks and the role of both technology and policy in mitigating against them
- Understand the role of cryptography in computer security, including its benefits and limitations
- Explain various cryptographic approaches and techniques for the provision of secrecy, authentication, integrity and non-repudiation
- Demonstrate the ability to use commercial encryption software for both secrecy of data and authentication purposes
- Demonstrate an understanding of a range of tools that are available to support security services.

**Assessment Method: 50% Continuous Assessment 50% Final Exam**

**Programme Code: Year 3**  
**Module title: Software Enterprise -level 7**  
**Offered: Semester 6**  
**Credits: 5**

**Learning Outcomes:**

The aim of this module is to develop the student's creativity, analytical skills and decision prowess in business plan formulation, and to provide students the opportunity to produce an authentic business plan. On successful completion of this module a student will be able to:

1. Formulate, design and communicate a realistic business plan based upon a high technology or software product idea
2. Apply small business and entrepreneurship management theory to problem situations via case study analysis.
3. Understand and engage in the processes of creativity and opportunity recognition through the use of action based exercises.
4. Demonstrate an awareness of the changing characteristics of a software business as it progresses through the start-up lifecycle.

**Assessment Method:**

**100% Continuous Assessment**

**Programme: Year 3**  
**Module title: Organisational Information Systems, level - 7**  
**Offered: Semester 6**  
**Credits: 5**  
**Learning Outcomes:**

This module will expand upon the basic concepts of information systems and will illustrate how information systems are utilized at an organisational level. On successful completion of this module a student will be able to:

- Categorize organisational activities as part of an organisational value chain.
- Illustrate how information systems are applied in different functional areas.
- Outline the inter-relationships between functional information systems.
- Justify the need for information integration within an organisation.
- Identify how information systems can be used to restructure business processes and organisational forms.
- Outline how information systems can assist in decision making.
- Illustrate how organisations can manage their data resource.
- Demonstrate proficiency in the use of an ERP package

**Assessment Method:**           **50% Final Exam,**  
**50% continuous assessment**

**Programme Code: Year 3**

**Module title: User Centered Design - Level 7**

**Offered: Semester 26**

**Credits: 5**

**Learning Outcomes:**

User Centered Design builds on the module Cognitive Science & HCI from Semester 3. This module will give the student a thorough theoretical and practical understanding of the design of human centered technology. The student will also gain an understanding of the theory and practice of evaluation and usability testing. On successful completion of this module a student will be able to:

- Demonstrate an understanding of the underlying issues and principles of User Centered Design.
- Describe and differentiate between the various methods of analysing users.
- Create prototypes of proposed design solutions.
- Demonstrate and illustrate their understanding of the stages involved in usability testing.
- Recognise and explain the impact of social, economic, political and cultural factors on the design of user interfaces.

**Assessment Method:**  
**100% Continuous Assessment**

**Programme Code: Year 3**

**Module title: GUI Development- Level -7**

**Offered: Semester 6**

**Credits: 5**

**Learning Outcomes:**

This module examines the software development techniques used in the design of Graphical User Interfaces (GUIs). It addresses creation of GUIs through web based and stand-alone front-end applications, and how to port a desktop application to a web environment. It focuses primarily on the Abstract Window Toolkit (AWT) library. Finally, Networking Technologies and Database Connectivity concepts are introduced to the student, with extensive practical exercises taking the student through all major aspects of the design and development of GUI Applications. On successful completion of this module a student will be able to:

- Classify GUI Components and develop simple GUI Applications using AWT/Swing components.
- To understand and apply the concepts of class hierarchy and encapsulation that underlying the idea of packages, in application development.
- Demonstrate competency in the use of Object-Oriented Container Libraries.
- Demonstrate the use of Database Connectivity to develop more sophisticated applications.

**Assessment Method:**  
**100% Continuous Assessment**

## **Programme: BSc in Software Systems Development –Year 4**

**Programme Code: WD Year 4 – Level 8**

**Module title: Project Analysis and Design**

**Offered: Semester 7**

**Credits: 5**

### **Learning Outcomes:**

This module brings together and extends the student's knowledge of software engineering with a view to equipping them for their project work in this current year ( Year IV) of the programme.

On successful completion of this module a student will be able to:

- Have completed the first half of their fourth year project and have available appropriate developmental documentation and reports
- Be able to engage with their supervisor in discussion how their project might proceed and the risks and options associated with their work
- Have completed a technological prototype of their project showing that their hardware and software components work together.
- Understand how to engage with people from the problem domain associated with their project.

**Assessment Method:** 100% Continuous Assessment

**Programme Code: WD Year 4 Level 8**

**Module title: IS Project Management**

**Offered: Semester 7**

**Credits: 5**

### **Learning Outcomes:**

This module aims to provide the student with the ability to develop an understanding of Project Management in context, to show the importance of the planning process, to provide the student with the ability to define and build project plans, to estimate project durations, using appropriate software and techniques to control and monitor project schedules.

On successful completion of this module a student will be able to:

- Demonstrate a sophisticated understanding of the range of concepts that underpin the theoretical and practical aspects of the project management in software project context.
- Define and build project plans using the IEEE standard for software project plans
- Estimate software project duration and costs using a variety of tools and models
- Use project management software to plan, control and monitor project schedules.
- 

**Assessment Method:** 100% Continuous Assessment

**Programme Code: WD Year 4 – Level 8**

**Module title: Inter Organisational Info System**

**Offered: Semester 7**

**Credits: 5**

### **Learning Outcomes:**

This module will address the concepts and issues of the inter-organisational use of information systems (IOS) and its role in supply chain operations. It will address the IOS technology infrastructure and the ongoing process of IOS relationships, strategic networks, adoption and diffusion

On successful completion of this module a student will be able to:

- Explain the role of organisational information systems for managing inter-organisational activities on the supply chain.

- Understand the different technologies that serve as infrastructure for managing IOS.
- Have experience in the use of technology to understand business processes on the supply chain
- Discuss the relationship with IOS, strategic networks and DSS

**Assessment Method:**

50% Final written examination, 50% Continuous Assessment

**Programme Code: WD Year 4- Level 8**

**Module title: IT Security**

**Offered: Semester 7**

**Credits: 5**

**Learning Outcomes:**

This module builds on the Security Principles module, with the main focus here on applying security best practice to organisational situations. Topics covered include network security (inc. wireless), web security, intrusion detection, firewalls and malicious software.

On successful completion of this module a student will be able to:

- Have a comprehensive knowledge of the various security threats and attacks methods to which an organisation may be susceptible.
- Have a practical knowledge of the security technologies that must be implemented to protect an organisation,
- Exhibit and in-depth understanding of the organisational issues involved when introducing security measure.

**Assessment Method:**

50% Final examination, 50% Continuous Assessment

**Programme Code: WD Year 4**

**Module title: Web Server Programming**

Semester 7

**Credits: 5**

**Learning Outcomes:**

This module aims to build on existing system development skills and introduce the concept of developing Server side web based application.

The student will be introduced to the core features of the MVC components and how to combine them in the design of effective architectures, using specific APIs and class Libraries.

On successful completion of this module a student will be able to:

- Develop medium-sized Web applications through the use of modern framework
- Can comprehend the key architecture styles and patterns used in a modern web application framework – MVC, ORM, REST
- Demonstrate proficiency in the use of specific APIs and Class Libraries

**Assessment Method:**

100% Continuous Assessment

**Programme Code: WD Year 4- level 8**  
**Module title: Agile Software Development**

**Offered: Semester 7**

**Credits: 5**

**Learning Outcomes:**

This module address a subset of the tools and technologies requires to support the development or reliable, efficient and scalable software services, and some techniques aimed at improving their maintainability. The focus is on the use of Agile development methods, requiring test-driven development and regular automated system builds.

On successful completion of this module a student will be able to:

- Demonstrate knowledge and understanding of modern software development methods, such as eXtreme programming
- Demonstrate an understanding of a range of tools that support agile development processes, in particular version control, build and testing, all operating within an IDE
- Be able to make appropriate choices regarding the application of refactoring techniques to software design.

**Assessment Method:**

100% Continuous Assessment

**Programme Code: WD Year 4 – Level 8**

**Module title: Data Warehousing**

**Offered: Semester 7**

**Credits: 5**

**Learning Outcomes:**

In this module students learn how to analyse data warehousing requirements, identify and specify components and technologies that may be deployed for the design and development of data warehouse. Use appropriate data mining techniques to extract valuable data for the organisation

On successful completion of this module a student will be able to:

- Analyse organisational requirements for data warehouse
- Design an efficient data warehouse
- Develop a data warehouse
- Be able to plan for future data warehouse requirements which will be aligned with the organisational needs
- Use appropriate data mining techniques

**Assessment Method:**

50% Final examination, 50% Continuous Assessment

**Programme Code: WD Year 4 - level 8**

**Module title: Project Construction and testing**

**Offered: Semester 8**

**Credits: 5**

**Learning Outcomes:**

This module gives the student the experience in fully developing a computing project based on a clear specification and plan (normally resulting from in Project systems analysis and Design, Semester 7). Following requirements gathering, systems Analysis and Design module, the implementation of the project. The Student, in consultation with his/her supervisor, will tackle the implementation phase of the project usually in accordance with adopted development methodology or process.

On successful completion of this module a student will be able to:

- Incorporate feedback from project Systems Analysis and design results into overall project plan and documentation.
- Update project plan to reflect feedback obtained from the implementation phase
- Breakdown implementation tasks into smaller parts or iterations.
- Present the final system and discuss the problem area with professional competence

**Assessment Method:**

100% Continuous Assessment

**Programme Code: WD Year 4**

**Module title: Database Administration**

**Offered: Semester 8**

**Credits: 5**

**Learning Outcomes:**

This module will be build upon the database systems module taken in semester5. The primary aim of this module is to expose the student to database administration issues and to provide them with the knowledge and know how to administrate a commercial database and troubleshoot any basic problems which may occur during its operation.

The overall ethos of the module will be to equip the student with the knowledge and skills required of typical DBA activities

On successful completion of this module a student will be able to:

- Plan and implement a database architecture
- Manage a commercial database operation and environment
- Tune an operational database
- Provide security, backup and security services

**Assessment Method:**

50% Final examination, 50% Continuous Assessment

**Programme Code: WD Year 4- Level 8**

**Module title: Business Intelligence**

**Offered: Semester 8**

**Credits: 5**

**Learning Outcomes:**

The module aims to provide students with theoretical and practical knowledge, skills and understanding of corporate decision making and Business Intelligence. It will address the tools that support the design, development, use and management of effective business intelligence solutions

On successful completion of this module a student will be able to:

- Describe concepts, components and different approaches to Business Intelligence
- Understand the factors of success in Business Intelligence strategy and planning
- Understand the relation of Business Intelligence to data Warehousing, ERP, CRM and SCM
- Use Business Intelligence tools and technologies to access and present data analytical processing.

**Assessment Method:**

50% Final examination, 50% Continuous Assessment



**Programme Code: WD Year 4 – level 8**

**Module title: Software Business**

**Offered: Semester 8**

**Credits: 5**

**Learning Outcomes:**

This module will enable students to become familiar with the business of commercialising bespoke and generic software. It applies business principles to explain how software can cross the chasm from "version 1" software to mainstream market success.

On successful completion of this module a student will be able to:

- Demonstrate an understanding of the main methods of organising software ventures by showing how these methods can be applied both effectively and ineffectively.
- Identify and assess the major tasks and challenges of copyrighting digital products and services
- Assess the suitability of particular business models to different environmental contexts

**Assessment Method:**

100% Continuous Assessment

**Programme Code: WD Year 4**

**Module title: Organisational Psychology**

**Offered: Semester 8**

**Credits: 5**

**Learning Outcomes:**

The aim of this module

- Consider and apply principles of psychology as an objective means of studying human behaviour within an organisational context
- Consider the organisational life-cycle from a number of perspectives including structure, culture, design and change
- Critically consider definitions of leadership, power and management
- Introduce key approaches and techniques in the study of managing workplace stress, wellbeing and diversity.

On successful completion of this module a student will be able to:

- Demonstrate an understanding of the human resource as an integral part of the organisational life
- Critically analyse the organisational life-cycle from a number of perspectives
- Critically consider definitions of leadership and management, and apply these definitions to evaluations of workplace situations.

**Assessment Method:**

100% Final examination

**Programme Code: WD Year 4 – level 8**

**Module title: Software Frameworks**

**Offered: Semester 8**

**Credits: 5**

**Learning Outcomes:**

This module introduces the student to the breed of technology being used to structure enterprise-class applications that are classified as Lightweight framework technology. This technologies' non-invasive characteristic results in greatly simplified business logic code consisting of so-called POJOs (plain old java objects).

On successful completion of this module a student will be able to:

- Describe the concepts underpinning lightweight technology (AOP,IOC, and transparent Persistence) and explain how they improve the design of an application's business logic – coupling, modularity, testability, simplicity.
- Examine how IOC is realised in a best-of-breed lightweight container and comprehend the full extent of its power in the management and configuration of an application's objects, including life cycle management, externalising deployment configuration and internalisation.
- Define the AOP model and utilise an implementation of this model to manually define simple aspects

**Assessment Method:** 50% Final examination, 50% Continuous Assessment

**Programme Code: WD Year 4 Level 8**

**Module title: Dynamic Web | Development**

**Offered: Semester 8**

**Credits: 5**

**Learning Outcomes:**

This module introduces the student to advanced Web Development techniques, with the emphasis on building server Side and Database Web Applications.

Building on the fundamental learnt in the Web Server Programming module, the student will enhance their existing skills and learn how to code and deploy complex web based applications.

On successful completion of this module a student will be able to:

- Develop more complex Web application through the use of the presentation components, including their integration.
- Design and implement Server side Web applications using the appropriate technologies for Database connectivity
- Deploy, configure and administer a Web Server for the purpose of Web application development.

**Assessment Method:** 50% Final examination, 15% Continuous Assessment, 35% Project.

# Programme: Bachelor of Science in Information Technology – Year 2 – level 6

**Programme Code: WD\_KINFT\_D (WD155) Year 2**

**Module title: Data Structures**

**Offered: Semester 3**

**Credits: 5**

## **Learning Outcomes:**

This module will instruct the student in object oriented programming techniques. It will illustrate object oriented programming concepts and equip the student with the knowledge to use objects in programming with confidence.

On successful completion of this module a student will be able to:

- Identify the core packages in the Java API.
- Create interfaces in Java
- Define and use exception classes
- Distinguish between one dimensional arrays and multi dimensional arrays.
- Describe the basic file handling technique used in the Java language.
- Create user objects and use them in conjunction with Java's collection classes.
- Be aware of the different Searching and Sorting techniques available for processing collection classes.

**Assessment Method:** 100% Continuous Assessment

**Programme Code: WD\_KINFT\_D (WD155) Year 2**

**Module title: Network Fundamentals**

**Offered: Semester 3**

**Credits: 5**

## **Learning Outcomes:**

The aim of this module is to introduce the learner to the fundamental concepts of networking in a bottom-up manner, beginning with the basics of how the underlying hardware works and how data is encoded and transmitted. Local Area Network topologies and technologies are then examined. No previous knowledge of networks is assumed and the module offers the opportunity for the learner to explore the basic concepts in both theory and practice.

On successful completion of this module a student will be able to:

- Describe the method by which data is transmitted, using labelled diagrams to support the description.
- Define what is meant by the concept of packets and frames and include simple diagrams.
- Summarise the details of LAN technology and network topology.
- Compare and contrast the mechanisms used for extending the LAN.
- Discuss the role of protocols and layering in the structure of a communications system.

## **Assessment Method:**

50% Final examination, 50% Continuous Assessment

**Programme Code: WD\_KINFT\_D (WD155) Year 2**

**Module title: Database Fundamentals**

**Offered: Semester 3**

**Credits: 5**

**Learning Outcomes:**

This module will introduce the student to the principles and practice of relational database systems including the Database Management Systems aspects. The student will gain competence in Entity Relationship modelling and normalisation techniques involved in the analysis and design phases of the software development lifecycle. They will gain experience in the design and implementation of a practical database system.

On successful completion of this module a student will be able to:

- Discuss the role of a DB and DBMS, the components of the DBMS, and the differing roles in the DB environment.
- Draw Entity Relationship (ER) diagram from an application problem and reproduce this diagram into a set of relations, which are ready for database implementation.
- Convert unnormalised relations into a set of normalised relations through the rules of normalisation which adhere to relational data model principles
- Gain an understanding of the physical database design process, its objectives and deliverables.
- Design and implement a database application.

**Assessment Method:** 50% Final Examination, 50% Continuous Assessment

**Programme Code: WD\_KINFT\_D (WD155) Year 2**

**Module title: Multimedia Fundamentals**

**Offered: Semester 3**

**Credits: 5**

**Learning Outcomes:**

This module aims to provide learners with a solid foundation and conceptualisation of multimedia concepts along with an introduction to some of the many multimedia editing packages that are used in industry.

On successful completion of this module a student will be able to:

1. Discuss the basic concepts and applications of multimedia
2. Discriminate between media types used in the multimedia process such as audio (Sampling versus MIDI), video production, and still image production;
3. Analyse the role of each member in a typical multimedia development team
4. Evaluate the work of the multimedia team in terms of information design, interactive design and presentation design
5. Gain competency in the use of digital photo editing through Adobe Photoshop

**Assessment Method:**

**100% Continuous Assessment**

**Programme Code: WD\_KINFT\_D (WD155) Year 2**

**Module title: Mathematical Modelling**

**Offered: Semester 3**

**Credits: 5**

**Learning Outcomes:**

This module will introduce the student, formally, to the concepts of mathematical modelling. It will develop their ability to choose the appropriate model for a given real-world problem and enable them to interpret the results. Spreadsheets will be used as an aid to understanding the intricacies of mathematical modelling and as a tool to develop more intricate models.

On successful completion of this module a student will be able to:

- Translate real-world problems into mathematics for subsequent analysis
- Determine when Linear Models are appropriate and analyse their results
- Formulate solutions to detailed financial problems
- Determine when Non-Linear Models are appropriate, implement and analyse their results

**Assessment Method: 50% Final Examination, 50% Continuous Assessment**

**Programme Code: WD\_KINFT\_D (WD155) Year 2**

**Module title: Web Applications**

**Offered: Semester 3**

**Credits: 5**

**Learning Outcomes:**

The aim of this module is to introduce the learner to the fundamental concepts of web-based applications. It builds on the learners' previous knowledge of basic web design and the use of HTML and aims to broaden their knowledge and skills in the continually evolving technologies of web clients and web server environments. The module offers the opportunity for the learner to explore the basic concepts, in both theory and practice, which relate to script writing and good web programming practice.

On successful completion of this module a student will be able to:

- Describe the web standards that have allowed for a transition in web programming from HTML to XHTML.
- Define what is meant by the concept of metadata.
- Compare and contrast the techniques used for web-based information layout and presentation.
- Apply the basics of a scripting language in web-page design.

**Assessment Method: 100% Continuous Assessment**

**Programme Code: WD\_KINFT\_D (WD155) Year 2 - level 7**

**Module title: Event Driven Programming**

**Offered: Semester 4**

**Credits: 5**

**Learning Outcomes:**

This module will instruct the student in web programming techniques. It will illustrate web programming and equip the student with the knowledge to program for the web with confidence.

On successful completion of this module a student will be able to:

- LO1. Apply containers and layouts to produce simple GUI Java applications.
- LO2. Describe the fundamentals of Java's graphical rendering system.
- LO3. Create applications that use low-level on-screen graphics.
- LO4. Create simple Java applets.
- LO5. Create GUI applications that use Java Swing components for input and output.
- LO6. Describe Java's event handling model.
- LO7. Describe the use of basic multi-threading in Java.
- LO8. Develop thread-based Java applications.

**Assessment Method: 100% Continuous Assessment**

**Programme Code: WD\_KINFT\_D (WD155) Year 2- Level 7**

**Module title: Internetworking**

**Offered: Semester 4**

**Credits: 5**

**Learning Outcomes:**

The aim of this module is to deepen the learner's understanding of networking concepts in the context of internetworking. The module builds on fundamental networking concepts already studied and extends on that knowledge by examining wide area network concepts, wireless communications and internet protocols. It progresses to network applications and their implementation details.

On successful completion of this module a student will be able to:

- Discuss the Internet Protocol addressing scheme.
- Explain the technique used for IP encapsulation.
- Compare and contrast IP version 4 and Internet Protocol version 6 (IPv6).
- Explain how network application programs use protocol software.
- Explain how wireless communications operate.
- Explain the basics of network management software.
- Describe the basic techniques used in network security.
- Extend the knowledge of concepts through independent learning.

**Assessment Method:**

**50% Final Examination, 50% Continuous Assessment**

**Programme Code: WD\_KINFT\_D (WD155) Year 2- level 7**

**Module title: Database Systems**

**Offered: Semester 4**

**Credits: 5**

**Learning Outcomes:**

In this module, the student builds on the knowledge gained in Database Fundamentals. The student is exposed to advanced data modelling techniques. They will be provided with the knowledge and know how to administer and manage a commercial database. The student will also gain competence in SQL.

On successful completion of this module a student will be able to:

- Demonstrate the ability to model more complex applications using advanced data modelling concepts.
- Recognise and explain the important issues when administering an enterprise level database and suggest standard techniques to handle those issues.
- Understand the fundamentals of distributed databases.
- Identify and assess the various vulnerabilities a database may be subjected to.
- Construct SQL statements, which would allow for the creation of a relational database tables and manipulation of the data within those tables.

**Assessment Method:**

**50% Final Examination, 50% Continuous Assessment**

**Programme Code: WD\_KINFT\_D (WD155) Year 2- level - 7**

**Module title: Multimedia Development**

**Offered: Semester 4**

**Credits: 5**

**Learning Outcomes:**

This module aims to provide learners with both a theoretical and practical view of building a complete multimedia application.

On successful completion of this module a student will be able to:

- Plan, strategise and design a complete application using paper prototyping
- Apply HCI principles in the design of working prototype and evaluate it's role in the design and development of multimedia applications
- Using a variety of multimedia applications design and develop a working prototype of a multimedia title of your choice
- Gain competency in the use of Adobe Dreamweaver

**Assessment Method: 100% Continuous Assessment**

**Programme Code: WD\_KINFT\_D (WD155) Year 2 – level 7**

**Module title: Management Science**

**Offered: Semester 4**

**Credits: 5**

**Learning Outcomes:**

This module aims to further develop the students' problem solving skills. It assumes a basic knowledge of Linear Regression techniques and expands on them into the realm of Advanced Regression Techniques. It introduces the student to the mathematics of Networks and Probability. The student will see how probability can be applied in a commercial/industry setting. MS Excel will be used as a modelling tool.

On successful completion of this module a student will be able to:

- Use Visual Basic to automate spreadsheet tasks
- Identify patterns from intricate data sets, present them for subsequent analysis and draw suitable inferences from them
- Understand and analyse network graphic diagrams
- Use probability techniques to evaluate Quality Control procedures.

**Assessment Method:**

**50% Final Examination, 50% Continuous Assessment**

**Programme Code: WD\_KINFT\_D (WD155) Year 2 - level 7**

**Module title: Meta-information**

**Offered: Semester 4**

**Credits: 5**

**Learning Outcomes:**

This module introduces the fundamental concepts of web information management. The module introduces the learner to concepts of universal formatting for structured documents using XML. It builds on the learner's previous knowledge of basic client side web design and scripting and introduces the learner to server-side technologies.

On successful completion of this module a student will be able to:

- Compare and Contrast between structured and unstructured documents
- Demonstrate an understanding of basic XML anatomy and structure
- Demonstrate how to create a "well-formed" document
- Discuss the importance of validation in the creation of XML documents
- Apply the basics of eXtensible scripting to a well formed document.
- Demonstrate a practical knowledge of server-side scripting technologies.

**Assessment Method:**

**50% Final Examination, 50% Continuous Assessment**

# Programme: Bachelor of Science in Information Technology – Year 3

**Programme Code: WD\_KINFT\_D (WD155) Year 3**

**Module title: Flexible Semester**

**Offered: Semester 5**

**Credits: 5**

## **Brief Description of Module:**

To enhance a student's ability to work autonomously in a professional manner setting through work placement or the industry-accredited courses. The primary objective of the flexible semester is to provide the student with a broader skills base on the completion of the degree. The organisation of the Flexible semester and the maintenance of the final reports will be coordinated by a central facility in WIT.

On successful completion of this module a student will be able to:

- Critically reflect upon their learning experiences using weekly reflective logs;
- Demonstrate new skills and attitude acquire from engagement with the flexible semester through written reports;
- Prepare an up to date professional curriculum vitae
- Communicate effectively in an appropriate and professional manner and format;
- Develop specific, measurable, attainable flexible semester objectives agreed with their flexible semester mentor

## **Assessment Method:**

Assessment Porto folio will differ depending on the option undertaken by the student.

- Start of the semester CV (10%)
- Weekly reflective log updates (30%)
- Flexible semester objectives (10%)
- End semester report (30%)
- Mentor/Employer evaluation of student (15%)
- End of semester CV (5%)

**Programme Code: WD\_KINFT\_D (WD155) Year 3**

**Module title: Security Principles- Level 7**

**Offered: Semester 6**

**Credits: 5**

## **Learning Outcomes:**

This module provides an introduction to IT Security. The emphasis is on the fundamentals of security, including the nature of threats and services that can be put in place to address these threats. Cryptographic techniques, that underpin many security mechanisms, are also covered.

On successful completion of this module a student will be able to:

- Describe the various security services that can be provided to an organisation
- Understand the nature of threats and attacks and the role of both technology and policy in mitigating against them
- Understand the role of cryptography in computer security, including its benefits and limitations
- Explain various cryptographic approaches and techniques for the provision of secrecy, authentication, integrity and non-repudiation
- Demonstrate the ability to use commercial encryption software for both secrecy of data and authentication purposes

## **Assessment Method:**

**50% Final Examination, 50% Continuous Assessment**



**Programme Code: WD\_KINFT\_D (WD155) Year 3**

**Module title: GUI Development- Level 7**

**Offered: Semester 6**

**Credits: 5**

**Learning Outcomes:**

This module examines the software development techniques used in the design of Graphical User Interfaces (GUIs). It addresses creation of GUIs through web based and stand-alone front-end applications, and how to port a desktop application to a web environment. It focuses primarily on the Abstract Window Toolkit (AWT) & Swing libraries. Finally, Database Connectivity concepts are introduced to the student, with extensive practical exercises taking the student through all major aspects of the design and development of GUI Applications.

On successful completion of this module a student will be able to:

- Classify GUI Components and develop simple GUI Applications using AWT/Swing components.
- To understand and apply the concepts of class hierarchy and encapsulation that underlie the idea of packages, in application development.
- Demonstrate competency in the use of Object-Oriented Container Libraries.
- Demonstrate the use of Database Connectivity to develop more sophisticated applications.

**Assessment Method: 100% Continuous Assessment**

**Programme Code: WD\_KINFT\_D (WD155) Year 3**

**Module title: Systems Development- Level 7**

**Offered: Semester 6**

**Credits: 5**

**Learning Outcomes:**

This module introduces students to IT project management and to the principles and practices of object oriented information systems analysis and design.

On successful completion of this module a student will be able to:

- Explore the phases in the IT project lifecycle and the system developments life cycle
- Identify leaderships roles and responsibilities in IT project management
- Design budget and schedule constraints for a detailed IT project
- Examine the various systems development methodologies
- Investigate the various tools and techniques used for gathering and determining requirements for an information system
- Construct UML models for specific system case studies
- Reflect on model solutions for the purpose of refining user requirements.
- Construct UML diagrams using the software package Rational Rose

**Assessment Method:**

**100% Continuous Assessment**

**Programme Code: WD\_KINFT\_D (WD155) Year 3**

**Module title: Hypermedia Systems level 7**

**Offered: Semester 6**

**Credits: 5**

**Learning Outcomes:**

This module will introduce the student to Hypermedia and Web Information Management and Architecture.

On successful completion of this module a student will be able to:

- Identify and describe the characteristics of hypermedia.
- Characterise hypermedia applications and distinguish them from other software applications.
- Characterise the primary information models.
- Define information architecture.
- Identify user needs and behaviours.
- Design, implement and evaluate a hypermedia application.

**Assessment Method:**

**50% Final Examination, 50% Continuous Assessment**

**Programme Code: WD\_KINFT\_D (WD155) Year 3**

**Module title: Advanced Databases - Level 7**

**Offered: Semester 6**

**Credits: 5**

**Learning Outcomes:**

This module builds upon the knowledge gained in the Database Systems module. The primary aim of this module is to expose the student to complex database issues and problems and to provide students with the knowledge and technical ability to solve those problems. The module will also provide the student with the necessary skills to make critical decisions in regards to database design, implementation, maintenance, conversion and testing in both a traditional and a distributed environment.

On successful completion of this module a student will be able to:

1. Be proficient in SQL and subsequently develop a database solution.
2. Competently interact with a commercial database environment and its related components.
3. Understand the role of transaction management and to deploy suitable techniques to support this concept.
4. Provide an implementation plan for a database solution and critically assess a typical database solution.
5. Understand the issues involved in Object Oriented Database solutions.
6. Understand the issues involved in a Distributed Database environment.
7. Understand the issues involved in Multimedia & Internet Database solutions.

**Assessment Method: 50% Continuous Assessment, 50% final exam.**

**Programme Code: WD\_KINFT\_D (WD155) Year 3**

**Module title: MIS Fundamentals Level 7**

**Offered: Semester 6**

**Credits: 5**

**Learning Outcomes:**

This module will provide students with the fundamental concepts of how business firms use information technologies and systems to manage and organise business operations towards achieving corporate objectives.

On successful completion of this module a student will be able to:

1. Describe the foundation concepts behind Information Systems and justify why knowledge of Information Systems is important in a business environment.
2. Understand how a business works by identifying business processes and how Information Systems fit into business operations.
3. Describe how the use of Information Systems can help an organisation to gain a strategic business advantage.
4. Describe business functional areas. Explain and use how integrated information systems help a firm prosper by improving business processes and by providing business managers with accurate, consistent and current data
5. Discuss new technology innovations for managers to achieve business objectives.

**Assessment Method: 50% Final Examination, 50% Continuous Assessment**

**Programme Code: WD\_KINFT\_D (WD155) Year 3**

**Module title: Systems Development Level 7**

**Offered: Semester 6**

**Credits: 5**

**Learning Outcomes:**

This module introduces students to IT project management and to the principles and practices of object oriented information systems analysis and design.

On successful completion of this module a student will be able to:

- Explore the phases in the IT project lifecycle and the system developments life cycle
- Identify leaderships roles and responsibilities in IT project management
- Design budget and schedule constraints for a detailed IT project
- Examine the various systems development methodologies
- Investigate the various tools and techniques used for gathering and determining requirements for an information system
- Construct UML models for specific system case studies
- Reflect on model solutions for the purpose of refining user requirements.
- Construct UML diagrams using the software package Rational Rose

**Assessment Method: 100% Continuous Assessment**

**Programme Code: Y3**

**Module: Introduction to Cognition and Perception – Level 7**

**Offered: Semester 6**

**Credits: 5**

**Objectives:**

This module is aims to;

- develop and understanding of the basic principles and areas in cognitive psychology
- provide an understanding of the basic principles and areas in the psychology of perception
- Evaluate the link between perception and cognition.

**On completion of this subject, the student should be able to:**

1. demonstrate and understanding of the principles of cognitive psychology
2. describe and evaluate the application of cognitive psychology to everyday reasoning and problem-solving
3. demonstrate an understanding of the different modes of perception

**Assessment Methods:** 100 % Final Examination

**Programme : Y3 – Level 7**

**Module title: French Level B2.1**

**Semester 6**

**Brief Description of Module:**

This module aim to:

- Give the student and understanding of the main ideas of complex text both concrete and abstract topics, including technical discussion in his/her field of specialization
- Facilitate the student in engaging in spontaneous discussion in the target language
- Enable the student to produce clear detailed text on a wide range of subjects and explain a viewpoint on a topical issue giving the advantages and disadvantages of various option;

**Learning Outcomes:**

1. Oral Production

With attention to pronunciation and intonation, the learner is expected to be able to:

- Give clear description and presentation on a wide range of subjects, expanding and supporting ideas with subsidiary points and relevant examples;
- Develop a basic argument, expanding and supporting his/her points of view at some length with subsidiary points

## 2. Written production

The learner is expected to be able to:

- Express and exchange news and views effectively in writing and relate to those of others
- Write short articles conveying simple information and getting across comprehensively the points he / she feels are important

## 3. Aural Reception (listening)

The learner is expected to be able to:

- Follow extended speech and complex lines of argument provided the topic is reasonably familiar and the direction of the talk is signposted by explicit markers;
- Understand announcements and messages on concrete topics spoken in standard dialect at normal speed.

## 4. Visual Reception (Reading)

The learner is expected to be able to:

- Have developed an active reading vocabulary appropriate to the level but may still experience difficulty with low frequency idioms;
- Be able to understand lengthy complex instructions including details on conditions and warnings.

### **Assessment Methods:**

- 100 % continuous Assessment

### **Programme : Y3 – Level 7**

### **Module title: German level B1.1**

### **Semester 6**

### **Brief Description of Module:**

This module aim to:

- Enable the student to understand the main points of a clear standard input on familiar matters regularly encountered in work, school, leisure etc.
- Train the student to deal with rehearsed situations likely to arise whilst travelling in an area where the language is spoken;
- Allow the students to produce simple connected text on topic which are familiar or of personal interest;

### **Learning Outcomes:**

#### 1. Spoken production and Interaction

The learner is expected to be able to

- Exploit a wide range of simple language to deal with most situations likely to arise while travelling
- Sustain a reasonable straightforward description of one of a variety of subjects within his/her field of interest in a reasonably fluent manner;
- Deliver short rehearsed announcements on a topic pertinent to every day occurrences in his / her field which, despite possibly very foreign stress and intonation are nevertheless clearly intelligible.

#### 2. Written production

The learner is expected to be able to:

Write straightforward connected texts on a range of familiar subjects within his/her field of interest.

### 3. Aural Reception (listening)

The learner is expected to be able to:

- Understand straightforward factual information about common everyday or job-related topics, identifying general messages, provided speech is clearly articulated in generally familiar accent;
- Follow many shorter films in which visuals and actions carry much of the story line and when the delivery is relatively slow and clear

### 4. Visual Reception (Reading)

The learner is expected to be able to:

- Understand shorter texts related to work, school, leisure, etc. in which a sequence of familiar events is described in relatively simple and familiar language;
- Find and understand relevant information in everyday materials/signs/timetables/notices etc. encountered while travelling in countries where the language is spoken.

#### **Assessment Methods:**

- 100 % continuous Assessment

#### **Programme : BBSS Year 3**

#### **Module title: Flexible Semester - Level 7**

**Offered: Semester 5**

**Credits: 5**

#### **Brief description of The Module:**

To enhance a student's ability to work autonomously in a professional setting through work placement or the completion of industry-accredited courses. The primary objective of the flexible semester is to provide the student with a broader skills-base on the completion of the degree

#### **Learning Outcomes**

On completion of this course the student should be able to:

- Critically reflect upon their learning experiences using weekly reflective logs;
- Demonstrate new skills and attitudes acquired from engagement with the flexible semester through written reports;
- Demonstrate evidence of increased professional and technical competency through written reports;

#### **Assessment Methods:**

Assessment Portfolio will differ depending on the option undertaken by student.-

- Start semester CV (10%)
- Weekly reflective log updates (30%)
- Flexible semester objectives (10%)
- End semester report (30%)
- Mentor/employer evaluation of student (15%)
- End of semester updated CV (5%)

# Programme: Bachelor of Science (Honours) in Information Technology – Year 4 - Level 8

**Programme Code: WD\_KINFT\_D (WD155) Year 4**

**Module title: Project Analysis and Design**

**Offered: Semester 7**

**Credits: 5**

## **Learning Outcomes:**

This module brings together and extends the student's knowledge of software engineering with a view to equipping them for their project work in this current year (year IV) of the programme. In addition it requires the student to prepare a consolidated report on the first stage of their fourth year project in conjunction with the learning contract established between student and supervisor.

On successful completion of this module a student will be able to:

- Have completed the first half of their fourth year project and have available appropriate development documentation and reports
- Be able to explain diagrammatically and in words, at e.g. a white board, to their peers the work of their project.
- Be able to engage with their supervisor in discussion how their project might proceed and the risks and options associated with their work
- Have completed a technological prototype of their project showing that their hardware and software components work together.

## **Assessment Method:**

**100% Continuous Assessment**

**Programme Code: WD\_KINFT\_D (WD155) Year 4**

**Module title: Data Warehousing**

**Offered: Semester 7**

**Credits: 5**

## **Learning Outcomes:**

In this module students learn how to analyse data warehousing requirements, identify and specify components and technologies that may be deployed for the design and development of a data warehouse. Use appropriate data mining techniques to extract valuable data for the organisation.

On successful completion of this module a student will be able to:

- Analyse organisational requirements for a data warehouse
- Design an efficient data warehouse
- Use appropriate data mining techniques
- Be able to plan for the future data warehouse requirements which will be aligned with the organisational needs

## **Assessment Method:**

50% Final written examination

50% Continuous Assessment

**Programme Code: WD\_KINFT\_D (WD155) Year 4**  
**Module title: Inter-organisational Information Systems**

**Offered: Semester 7**

**Credits: 5**

**Learning Outcomes:**

This module will address the concepts and issues of the inter-organisational use of information systems (IOS) and its role in supply chain operations.

It will address the IOS technology infrastructure and the ongoing process of IOS relationships, strategic networks, adoption and diffusion.

On successful completion of this module a student will be able to:

- Explain the role of inter-organisation information systems for managing inter-organisational activities on the supply chain.
- Understand the different technologies that serve as infrastructures for managing IOS.
- Have experience in the use of technology to understand business processes on the supply chain.
- Discuss the relationship with IOS, strategic networks and DSS

**Assessment Method:**

50% Continuous Assessment

50% Final Exam

**Programme Code: WD\_KINFT\_D (WD155) Year 4**

**Module title: Systems Development**

**Offered: Semester 7**

**Credits: 5**

**Learning Outcomes:**

This module examines the implications of delivering training and development programmes via e-learning. It is designed to raise awareness of the strategic approach needed within the organisation to ensure that e-learning is effective.

The challenges of implementing and delivering e-learning programmes are examined.

On successful completion of this module a student will be able to:

- Define the role of e-learning in the organisation's strategic plan
- Discuss the relationships between knowledge management and employee learning
- Apply the steps of Instructional Design to a learning and e-learning scenario
- Design an implementation of the Instructional Design steps applicable to lesson development
- Explain the role of emerging e-learning standards

**Assessment Method: 100% Continuous Assessment**

**Programme Code: WD\_KINFT\_D (WD155) Year 4**

**Module title: IT Security**

**Offered: Semester 7**

**Credits: 5**

**Learning Outcomes:**

This module builds on the Security Principles module, with the main focus here on applying security best practice to organisational situations.

Topics covered include network security (inc. wireless), web security, intrusion detection, firewalls and malicious software.

Principles of access control and trusted systems are also covered, as is the implementation of security in the organisation.

On successful completion of this module a student should:

- Have a comprehensive knowledge of various security threats and attack methods to which an

- organisation may be susceptible.
- Have a practical knowledge of the security technologies that must be implemented to protect an organisation
  - Exhibit an in-depth understanding of the organisational issues involved when introducing security measures.
  - Apply recovery measures should an organisation find itself the victim of a security breach.

**Assessment Method: 50% Continuous Assessment  
50% Final Exam**

**Programme Code: WD\_KINFT\_D (WD155) Year 4**  
**Module title: Web Retrieval Systems**  
**Offered: Semester 7**  
**Credits: 5**

**Learning Outcomes:**

This module introduces the rapidly developing technologies which are enabling more intelligent and automated transaction over the internet, and presents an overview of the implications of deploying such a layer of infrastructure.

On successful completion of this module a student will be able to:

- Discuss how the Semantic Web is enhancing current technologies
- Examine current technologies applications and tools;
- Discuss current examples of deployed systems.
- Discuss future trends in the area

**Assessment Method:**  
100% Practical Assessment

**Programme Code: WD\_KINFT\_D (WD155) Year 4**  
**Module title: Project Construction and Testing**  
**Offered: Semester 8**  
**Credits: 5**

**Learning Outcomes:**

This module gives the student the experience in fully developing a computing project based on a clear specification and plan (normally resulting from in project Systems analysis and Design, semester 7) Following requirements gathering, prototyping and planning in the project SAD module, the student now concentrates on the implementation of the project.

On successful completion of this module a student will be able to:

- Incorporate feedback from project Systems analysis and Design results into overall project plan and documentation.
- Update project plan to reflect feedback obtained from the implementation phase
- Implement a fully tested, working system based on initial specification and chosen development methodology
- Reflect on limitations and potential of the chosen methodology and resulting solution
- Present the final system and discuss the problem area with professional competence.

**Assessment Method:**  
100% Continuous Assessment



**Programme Code: WD\_KINFT\_D (WD155) Year 4**

**Module title: Database Administration**

**Offered: Semester 8**

**Credits: 5**

**Learning Outcomes:**

This module will be builds upon the database systems module taken in semester5. The primary aim of this is to expose the student to database administration issues and to provide them with the knowledge and know how to administer a commercial database and troubleshoot any basic problems which may occur during its operation. It will introduce the student to a commercial database environment and then bring them through the specific issues that arise during database architecture creation, administration and maintenance.

On successful completion of this module a student will be able to:

- Plan and implement a database architecture
- Manage a commercial database operation and environment
- Tune an operational database
- Provide security, backup and security services

**Assessment Method:**

50% Continuous Assessment

50% Final Exam

**Programme Code: WD\_KINFT\_D (WD155) Year 4**

**Module title: Web Services Development**

**Offered: Semester 8**

**Credits: 5**

**Learning Outcomes:**

This module will introduces the student to methods, tools and techniques required to develop scalable web service based applications and service orientated architectures. The module will focuss on technologies, such as XML, information exchange protocols, web service registries and service description languages used in the development of web services.

On successful completion of this module a student will be able to:

- Progress from an understanding of web application structure to service oriented software
- Design, implement and deploy web services using the major software services standars and tools
- Understand the issues involved in Distributed systems
- Combine several web services to compose new service offering
- Design, develop and deploy synchronous and asynchronous processes using web service composition

**Assessment Method:**

50% Continuous Assessment

50% Final Exam

**Programme Code: WD\_KINFT\_D (WD155) Year 4**

**Module title: Network Technologies**

**Offered: Semester 8**

**Credits: 5**

**Learning Outcomes:**

The aim of this module is to expose the student to the issues involved in the operation of both wired and mobile networks,. The module will also provide the student with the necessary knowledge to the selection of suitable network technology solutions.

On successful completion of this module a student will be able to:

- Explain the short coming of IPv4 and how IPv6 addresses these shortcoming
- Describe in detail how IPv6 operates
- Understand wireless radio technologies, standards and topologies
- Comprehend the main concepts of Dynamic Routing protocols
- Distinguish between the major WAN technologies.

**Assessment Method:**

50% Practical Assessment

50% Final written l Exam

**Programme Code: WD\_KINFT\_D (WD155) Year 4**

**Module title: Business Intelligence**

**Offered: Semester 8**

**Credits: 5**

**Learning Outcomes:**

This module aims to provide students with the theoretical and practical knowledge, skills and understanding of corporate decision making and Business Intelligence. It will address the tools that support the design, development, use and management of effective business intelligence solutions.

On successful completion of this module a student will be able to:

- Describe concepts, components and different approaches to Business Intelligence
- Understand the main factors of success in Business Intelligence strategy and planning
- Use Business Intelligence tools and technologies to access and present data for analytical processing
- Understand the relation of Business Intelligence to Data Warehousing ERP,CRM and SCM

**Assessment Method:**

50% Continuous Assessment

50% Final written Exam

**Programme: Bachelor of Science in Multimedia Apps Development  
Year 2 – Level 6**

**Programme Code: KMULA\_D\_Y2**

**Module: Digital Audio Production**

**Offered: Semester 3**

**Credits: 5**

**Objectives:**

This module teaches the fundamentals of sound, sound recording and multi-track sound editing. A large emphasis is placed on practical work-recording. Editing, and mixing. Audio productions are created for use in multimedia applications & trans-coded for delivery on multiple platforms including CD, DVD, Web, digital broadcast, podcasting mobile devices.

On completion of this subject, the student should be able to:

- Script, record, edit, mix, and publish a sound production for multi-form delivery
- Publish a webpage and podcast, which contain sequences of multi-layered music and sound created, and produced by student.
- Demonstrate a theoretical understanding of the fundamentals of sound and professional sound editing, recording & publishing.
- Demonstrate an understanding & awareness of emerging technologies in the digital audio field.

**Assessment Method:**

**50% Continuous Assessment**

**50% Final Exam**

**Programme Code: KMULA\_D\_Y2**

**Module: Database Fundamentals**

**Offered: Semester 3**

**Credits: 5**

**Objectives:**

This module will introduce the student to the principles and practice of relational database systems including the Database management Systems aspects. The student will gain competence in Entity Relationship modelling and normalisation techniques involved in the analysis and design phases of the software development lifecycle. They will gain experience in the design and implementation of a practical database system

On completion of this subject, the student should be able to:

- Discuss the role of a DB and DBMS, the components of the DBMS, and the differing roles in the DB environment.
- Draw Entity Relationships (ER) diagram from an application problem and reproduce this diagram into a set of relations which are ready for database implementation.
- Convert unnormalised relations into a set of normalised relations through the rules of normalisation which adhere to relational data model principles
- Gain an understanding of the physical database design process, its objectives and deliverables.
- Design and implement a database application

**Assessment Method:**

**50% Continuous Assessment**

**50% Final Exam**

**Programme Code: KMULA\_D\_Y2**

**Module: Human Computer Interaction**

**Offered: Semester 3**

**Credits: 5**

**Objectives:**

This module studies the ways in which people interact with computers and to what extent computers are or are not developed for successful interaction with human beings. Historically and with some exceptions, computer system developers have not paid much attention to computer ease-of-use.

Many computer users today would argue that computer makers are still not paying attention to making their products “user-friendly”. One important HCI factor is that different users form different conceptions or mental models about their interactions and have different ways of learning and keeping knowledge and skills (different “cognitive

styles” and “right-brained” people). In addition, cultural and national differences play part.

Another consideration in studying or designing HCI is that user interface technology changes rapidly, offering new interaction possibilities to which previous research findings may not apply. Finally user preferences change as they gradually master new interfaces.

On completion of this subject, the student should be able to:

- Demonstrate an understanding of the underlying issues and principles of user interface design
- Understand, at a fundamental level, the links between HCI and human cognitive factors.
- Explain the benefits and limitations of involving users in the user interface design process
- Recognise the benefits associated with the use of design guidance and the issues involved in the practical use design guidelines
- Design and evaluate the quality of a User interface and show an understanding of standard interface design strategies
- Demonstrate an understanding of the fundamental principles of Usability.

#### **Assessment Method:**

#### **100% Continuous Assessment**

**Programme Code: KMULA\_D\_Y2**

**Module: Motion Graphics**

**Offered: Semester 3**

**Credits: 5**

#### **Objectives:**

The aim of this module aims to teach students industry standard techniques to create, edit and publish dynamic visuals using industry standard software. The student will work in a 2D authoring environment to create both simple and sophisticated animations for web applications. Games and movies. Student will use a non-linear video editing applications, games and movies, the student will use a linear video editing application to place, replace, trim and move clips to create a final edited video which will be enhanced through the use of customisable effects, titles and transitions and audio editing.

On completion of this subject, the student should be able to:

- Use industry standard 2D animation software to create, edit and transform simple graphics into complex animations
- Prepare and publish animations for distribution in different formats
- Shoot and capture video clips
- Use video editing software to edit complete and output a final video

#### **Assessment Method:**

#### **100 % Continuous Assessment**

**Programme Code: KMULA\_D\_Y2**

**Module: Web Development (3+1)**

**Offered: Semester 3**

**Credits: 5**

#### **Objectives:**

This module introduces the Web Development Process. It also introduces the student to the use of Multimedia Authoring Tools for developing Web Applications. The student will gain competence in the planning, design, development and maintenance of interactive Web applications.

On completion of this subject, the student should be able to:

- Successfully document and complete the planning stage of a web development project
- Successfully document and complete the design stage of a web development project.
- Successfully integrate multimedia elements into a Web Site, using industry standard multimedia authoring tools, to develop and publish a Web

**Assessment Method:**

**100% Continuous Assessment**

**Programme Code: KMULA\_D\_Y2**

**Module: Server Side programming**

**Offered: Semester 3**

**Credits: 5**

**Objectives:**

Building on existing programming and dynamic web development skills, this module will introduce the context of server side programming in the context of Web Application Development. The student will learn how to write server side scripts and to build database driven web sites.

On completion of this subject, the student should be able to:

- Create web pages with server side scripting language such as PHP or JSP
- Understand what is involved in setting up and building a database driven web site
- Integrate database content in web pages
- Create web pages with asynchronous server side processing

**Assessment Method: 100% Continuous Assessment**

**Programme Code: KMULA\_D\_Y2**

**Module: Mathematics for Graphics**

**Offered: Semester 4**

**Credits: 5**

**Objectives:**

Mathematics for graphics deals with the application of matrix algebra to transforming a shape or a solid in 2 or 3 dimensional space. The type of transformations considered include translations, scaling, shearing and rotations as well as perspective. The practical element of the module deals with the application of these methods to computer animation in particular. The module also deals with the construction of Beizer curves and cubic splines.

On completion of this subject, the student should be able to:

- Describe 2D polygon or a 3D polyhedron in terms of its faces and vertices using a Cartesian or homogeneous reference frame.
- Determine and apply the transformation matrices that perform translation, shearing, scaling or rotation in 2D or 3D space
- Determine and apply the transformation matrix that yields a perspective 3D view.
- Apply vector algebra and painter's algorithm to the hidden face and illumination problems in 3D rendering.
- Calculate equations for 2D cubic splines, find points on Bezier curves.
- Implement the various algorithms describe on the course in a suitable computer programming language such as Java.

**Assessment Method:**

**50% Practical Work 50% Final Exam**

**Programme Code: KMULA\_D\_Y2**  
**Module: Multimedia Data Structures**

**Offered: Semester 4**

**Credits: 5**

**Objectives:**

The purpose of this module is to consolidate and render more fluent the student's existing programming abilities, and to enable the student to write quality object-oriented software with well-chosen data structures.

On completion of this subject, the student should be able to:

- Design programs that use control structures, classes and methods
- Be aware of and able to illustrate the passing of messages among classes to solve a problem
- In accordance with a plan, develop classes that inherit some or all of the properties of other classes
- Be able to tackle reasonable programming projects, the project, the solution of which requires significant problem solving
- Develop a piece of software where objects have data structures as some of their attributes
- Know how to develop and improve his/her software development knowledge, to respond to workplace demands.

**Assessment Method:**

**100% Continuous Assessment**

**Programme Code: KMULA\_D\_Y2**  
**Module: Convergence media Technologies**

**Offered: Semester 4**

**Credits: 5**

**Objectives:**

This modules studies the emerging area of convergence technologies. In general, convergence is a coming together of two or more distinct entities or phenomena. Convergence is increasingly prevalent in the IT world; in this context the term refers to the combination of two or more different technologies in a single device. Taking pictures with a cell phone and surfing the web on a television are two of the most common examples of this trend.

The module aim to give the students an insight into the way the internet, interactive television and mobile systems function as well as introducing them to the principles and issues surrounding the design of interfaces for convergent media.

On completion of this subject, the student should be able to:

- Show a thorough understanding of the characteristics & limitations of each convergent technology
- Describe and specify platforms for hybrid multimedia systems
- Design systems & user interfaces for convergent systems

**Assessment Method:**

**100% Continuous assessment**

**Programme Code: KMULA\_D\_Y2**

**Module: Database Systems**

**Offered: Semester 4**

**Credits: 5**

**Objectives:**

In this module, the student builds on the knowledge gained in Database Fundamentals. The student is exposed to advanced data modelling techniques. The will be provided with the knowledge and know how to administer and manage a commercial database. The student will also gain competence in SQL.

On completion of this subject, the student should be able to:

- Demonstrate the ability to model more complex applications using advanced data modelling concepts
- Recognise and explain the important issues when administering and enterprise level database and suggest standard techniques to handle those issues.
- Understand the fundamentals of distributed databases.
- Identify and assess the various vulnerabilities a database may be subjected to.
- Construct SQL statements, which would allow for the creation of a relational database tables and manipulation of the data within those tables.

**Assessment Method:**

**50% Continuous Assessment**

**50% Final Exam**

**Programme Code: KMULA\_D\_Y2**

**Module: Software Engineering (OOD)**

**Offered: Semester 4**

**Credits: 5**

**Objectives:**

The core of this module is the object oriented design aspect which is aimed at targeting the essential design skills needed by a student to cope with the demands of an object oriented programming environment which they will encounter during the course.

Students will also be able to understand and apply the unique concepts of the analysis and design of multimedia systems.

On completion of this subject, the student should be able to:

- Understand the importance of requirement investigation and modelling, and implement this by analysing a system.
- Show proficiency in applying appropriate techniques that aid design, development, implementation and maintenance of large-scale multimedia systems.
- Have obtained an initial theoretical and practical experience of basic object oriented design concepts and their representation using UML, to enable the transfer of these concepts into a suitable object oriented language (Java)
- To establish the basis to enable the student to take a project from design through to implementation.

**Assessment Method:**

**50% Continuous Assessment**

**50% Final Exam**

**Programme Code: KMULA\_D\_Y2**  
**Module: Traditional Graphic Design**  
**Offered: Semester 4**  
**Credits: 5**

**Objectives:**

The aim of this module is to bring the artistic power and vision of each student to a higher level, by exploring a range of traditional art mediums (painting & drawing), analysing and interpreting art works (mood, tone, style, art influences and movements), And creating art works.

On completion of this subject, the student should be able to:

- LO1 : explore a range of art mediums and demonstrate a range of skills, techniques and processes to control the medium
- LO2: make and present art works which demonstrate understanding of graphic design principles
- LO3: Analyse and interpret paintings in terms of subject matter, composition, colour, form, tone, space etc..
- LO4: Explore and develop a range of creative and concept development ideas for design based projects
- LO5: Analyse and interpret TV, web and print advertisements in terms of concept, audience suitability, photographic style and formats.

**Assessment Method:**

**50% Continuous Assessment**  
**50% Final Exam**

## **Programme: Bachelor of Science in Multimedia Apps Development – Year 3 – Level 7**

**Programme Code: KMULA\_D\_Y3**  
**Module: Flexible Semester**  
**Offered: Semester 5**  
**Credits: 5**

**Brief Description of Module:**

To enhance a student's ability to work autonomously in a professional setting through work placement or the completion of industry-accredited courses. The primary objective of the flexible semester is to provide the student with a broader skills-base on the completion of the degree. The Organisation of the flexible semester and the maintenance of the final reports will be coordinated by a central facility in WIT.

On completion of this subject, the student should be able to:

- Critically reflect upon their learning experiences using weekly reflective logs;
- Demonstrate new skills and attitudes acquired from engagement with the flexible semester through written reports;
- Demonstrate evidence of increased professional and technical competency through written reports;
- Prepare an update professional curriculum vitae;
- Communicate effectively in an appropriate and professional manner and format;
- Manage the development of their learning ad performance with the minimum guidance;



### **Assessment Methods:**

Written Report on the work placement	30%
Industry Supervisors evaluation report	30%
Weekly log or journal	25%
Oral presentation on work experience	15%

### **Programme Code: KMULA\_D\_Y3 – Module: Network Systems Concepts**

**Offered: Semester 6**

**Credits: 5**

This module will provide the student with an introduction to networking concepts, the components of both a LAN and a WAN, also to provide the student with an understanding of the technologies currently available for Multimedia streaming.

### **Objectives:**

On completion of this subject, the student should be able to:

- Discuss the basic networking concepts and components.
- Differentiate between the different technologies utilised in the construction of a Local Area Network.
- Discuss the basic concepts of a WAN and distinguish between various WAN technologies.
- Discuss traditional Internet Applications
- Discuss wireless and mobile network concepts
- Discuss the technologies used for streaming multimedia over a WAN
- Support Protocols & Technologies

### **Assessment Method:**

**50% Final Examination, 50% Continuous Assessment**

### **Programme Code: KMULA\_D\_Y3 Module: Multimedia Programming**

**Offered: Semester 6**

**Credits: 5**

### **Objectives:**

To consolidate and render more fluent the abilities acquired up until now in programming. To enable the student to write multimedia applications and applets in a language such as Java.

On completion of this subject, the student should be able to:

1. design programs that use control structures, classes and methods
2. be aware of and able to illustrate the passing of messages among classes to solve a problem
3. in accordance with a plan, develop classes that inherit some or all of the properties of other classes
4. be able to tackle reasonable programming projects the solution of which requires some degree of problem solving
5. Develop a multimedia application without the use of advanced authoring tools
6. Know how to improve and develop his/her knowledge to respond to workplace demands or personal requirements.

**Assessment Method: 100% Continuous Assessment**

**Programme Code: KMULA\_D\_Y3**  
**Module: E-Learning and Accessibility**  
**Offered: Semester 6**  
**Credits: 5**

**Objectives:**

This module aims to provide students with an introduction to e-learning and accessibility. Topics covered include eLearning, accessibility policies, requirements and standards.

On completion of this subject, the student should be able to:

1. Describe the development design and authoring of eLearning.
2. Organise instruction and create learning environments.
3. Describe needs and task analysis.
4. Evaluate accessibility policies, requirements and standards.
5. Apply guidelines and standards in the creation, testing and validation of accessible user interfaces.
6. Develop a computer based, accessible learning environment.

**Assessment Method:**

**100% Continuous Assessment**

**Programme Code: DESG 0013; KMULA\_D\_Y3**  
**Module: Security Principles**  
**Offered: Semester: 6**  
**Credits: 5**

**Objectives:**

This module provides an introduction to IT Security. The emphasis is on the fundamentals of security, including the nature of threats and services that can be put in place to address these threats. Cryptographic techniques, that underpin many security mechanisms, are also covered.

On completion of this subject, the student will be able to:

1. Describe the various security services that can be provided to an organisation.
2. Understand the nature of threats and attacks and the role of both technology and policy in mitigating against them.
3. Understand the role of cryptography in computer security, including its benefits and limitations.
4. Explain various cryptographic approaches and techniques for the provision of secrecy, authentication, integrity and non-repudiation .
5. Demonstrate the ability to use commercial encryption software for both secrecy of data and authentication purposes.
6. Demonstrate an understanding of a range of tools that are available to support security services.

**Assessment Method:**

**50% Continuous Assessment, 50% Final Exam.**

## **Bachelor of Science (Honours) in Multimedia Apps Development – Year 4 – Level 8**

**Programme Code: KMULA\_D\_Y4**

**Module: Management**

**Offered: Semester 7**

**Credits: 5**

### **Objectives:**

The purpose of this module is to develop student awareness as to the individual and social process that influence human behaviour within organisations. This module will develop the student's management awareness by exposing the student to the fundamentals of management, including the functions of management, the skills required in management, and the context within which managers work.

On completion of this subject, the student should be able to:

- Critically evaluate the nature and impact of management, including the roles and functions of management
- Analyse the development of management theory and culture, relating the practical application to contemporary management.
- Assess influencing factors from the external business environment
- Critique existing literature and case studies relating to the application of management theories

### **Assessment Method:**

100% Continuous Assessment

**Programme Code: KMULA\_D\_Y4**

**Module: Multimedia Database Development**

**Offered: Semester 7**

**Credits: 5**

### **Objectives:**

This module will build upon the Database Fundamentals & database Systems previously taken in year the primary aim of this module is to expose the student to advanced database development issues. It will introduce the student to a multimedia database environment and then build upon this by examining appropriate methodologies and languages which may be deployed

On completion of this subject, the student should be able to:

- Illustrate advanced concepts and design of a distributed DBMS.
- Specify the benefits, components and functionality of a database replication server.
- Examine the concepts, standards and systems relating to object-relational DBMSs.
- Develop a web-based database using an appropriate set of tools and technologies

### **Assessment Method:**

50% Continuous Assessment

50 % Final Exam

**Programme Code: KMULA\_D\_Y4**  
**Module: Web Application Development**

**Offered: Semester 7**

**Credits: 5**

**Objectives:**

This module introduces the student to advanced Web Application Development techniques and standards, with the emphasis on building server side components with database Integration.

Building on the fundamentals learnt in the Server-Side Scripting module, the student will enhance their existing skills and learn how to create and deploy complex we-based applications.

Additionally students will be introduced to Web Service and service Orientated architecture (SOA)in web development

On completion of this subject, the student should be able to:

- Describe the client and server component of complex Web applications including their integration with data sources and session tracking.
- Design and implement Server side Web Components using the appropriate technologies for Database Connectivity
- Explain the roles and responsibilities of clients and servers in the context of multi-tiered Internet Applications.
- Understand architectures and design patterns applicable to modern web applications.

**Assessment Method:**

**50% Continuous Assessment**

**50% Final Exam**

**Programme Code: KMULA\_D\_Y4**  
**Module: Project Analysis & Design**

**Offered: Semester 7**

**Credits: 5**

**Objectives:**

This module brings together and extends the student's knowledge of software engineering with a view to equipping them for their project work in this current year (year IV) of the programme. In addition it requires the student to prepare a consolidated report on the first stage of their fourth year project in conjunction with a learning contract established between student and supervisor.

On completion of this subject, the student should be able to:

- Have completed the first half of their fourth year project and have available appropriate development documentation and reports
- Be able to explain, diagrammatically and in words, at e.g. a white board, to their peers the work of their project.
- Be able to engage with their supervisor in discussing how their project might proceed and the risks and options associated with their work
- Understand how to engage with people from the problem domain associated with their project.
- Have completed a technological prototype of their project showing that their hardware and software components work together

**Assessment Method:**

**100% Continuous Assessment**

**Programme Code: KMULA\_D\_Y4**

**Module: Design for Learning**

**Offered: Semester 7**

**Credits: 5**

**Objectives:**

This module aims to provide students with an overview of practical implications of learning theories, learning style theories and educational technologies with a view to designing effective instruction.

On completion of this subject, the student should be able to:

- Identify the key criteria of each of the main learning theories
- Assess the practical implication of pedagogical approaches to the design of interactive learning environments
- Design a learning framework that supports the interactive nature of learning theories and learning styles theories.

**Assessment Method:**

50% Continuous Assessment

50% Final Exam

**Programme Code: KMULA\_D\_Y4**

**Module: Exploration of Graphic Design**

**Offered: Semester 7**

**Credits: 5**

**Objectives:**

The aim of the module is to explore the application of graphic design while allowing the student to develop an in-depth knowledge of graphic interpretation and visual understanding.

On completion of this subject, the student should be able to:

- Apply creative and experimental graphic design to enhance multimedia projects
- Demonstrate strong conceptual visualisation skills
- Utilise Text as art and apply expressive typography
- Analyse visual meaning and audience interpretation
- Experiment with a broad range of styles
- Attain a fluency of advanced techniques and processes

**Assessment Method:**

**100% Continuous Assessment**

**Programme Code: KMULA\_D\_Y4**

**Module: 3D Graphics Application**

**Offered: Semester 7**

**Credits: 5**

**Objectives:**

The purpose of this module is to give the student the practical knowledge to create static 3D computer models of real-world objects and to be able to appreciate the theory and practice of 3D computer graphics techniques.

On completion of this subject, the student should be able to:

- Critically evaluate and apply techniques for the creation of fully rendered 3D computer graphics models
- Create, static, fully rendered and texture mapped 3D graphics models comprising polygons and curved shapes using a computer graphics development application
- Critically evaluate and apply the various 3D projections, e.g. axonometric (isometric, diametric) and perspective projections.
- Critically assess the theories and practices of 3D modelling techniques and apply these using a computer graphics development application.

**Assessment Method:**

**100% Continuous Assessment**

**Programme Code: KMULA\_D\_Y4**

**Module: Conceptual Game Design**

**Offered: Semester 7**

**Credits: 5**

**Objectives:**

This module enables the learner to critically evaluate digital games and provides the basic knowledge and understanding of games design.

On completion of this subject, the student should be able to:

- Critically evaluate games using the recognised terminology
- Evaluate game ideas through critical investigation and play-testing
- Critically discuss the composition of, and the roles and responsibilities within the games industry
- Develop and present a game pitch and proposal in a commercial style

**Assessment Method:**

**100% Continuous Assessment**

**Programme Code: KMULA\_D\_Y4**

**Module: IT Security**

**Offered: Semester 7**

**Credits: 5**

**Objectives:**

This module builds on the security Principles module, with the main focus here on applying security best practice to organisational situations. Topics covered include network security (inc. wireless), web security, intrusion, detection, firewalls and malicious software.

Principles of access control and trusted systems are also covered, as is the implementation of security in the organisation

On completion of this subject, the student should be able to:

- Have a comprehensive knowledge of the various security threats and attack methods to which an organisation may be susceptible.
- Have a practical knowledge of the security technologies that must be implemented to protect an organisation
- Exhibit an in-depth understanding of the organisational issues involved when introducing security measures.
- Apply recovery measures should an organisation find itself the victim of a security breach

**Assessment Method:**

**50 % Continuous Assessment, 50% Final Exam**

**Programme Code: KMULA\_D\_Y4**  
**Module: Video- Commercial Production**  
**Offered: Semester 7**  
**Credits: 5**

**Objectives:**

This module aims to:

- Be able to initiate an idea suitable for use in multimedia video and/or commercial advertisement
- To be able to develop a storyboard and use creative filters in the control and developments of the project
- To be able to develop and interpret a concept using multimedia applications for the production and editing of a video and/or commercial advertisement.

On completion of this subject, the student should be able to:

- Visualise an idea and communicate it effectively
- Be able to formulate a storyboard and use creative filters successfully to plan the video and / or commercial advertisement
- Show proof of concept through the production and editing of a video and/or commercial advertisement
- 

**Assessment Method:**

**100% Continuous Assessment**

**Programme Code: KMULA\_D\_Y4**  
**Module: Enterprise Development**  
**Offered: Semester 8**  
**Credits: 5**

**Objectives:**

The aim of this module is to explore entrepreneurship and new venture development; to provide students with a comprehensive overview of the legal, regulatory, financial, and other environmental influences faced by enterprises, and to enable students apply the knowledge gained to formulate a business plan and present to a same business audience

On completion of this subject, the student should be able to:

- Analyse the role of entrepreneurship and new venture development in the contemporary business world
- Critically evaluate the various internal and external environment factors that impact on an enterprise
- Assess the legal and regulatory requirements in establishing and managing an enterprise
- Identify and analyse the financial aspects of strategic and business planning for new ventures
- Create and draft an effective business models
- Professionally present a new venture to a business audience

**Assessment Method:**

**100% Continuous Assessment**

**Programme Code: KMULA\_D\_Y4**  
**Module: Advanced MM Database Concepts**  
**Offered: Semester 8**  
**Credits: 5**

**Objectives:**

This module will build upon the Multimedia Database Development previously taken in the semester 1. The primary aim of this module is to expose the student to advanced multimedia database concepts. It will introduce the student to advanced multimedia database concepts and then build upon this by examining procedures involved in querying and organising text/document databases and video/audio databases. Other issues to be addressed include security/privacy and standards/prototypes involved in the maintenance and operation of a MMDBMS.

On completion of this subject, the student should be able to:

- Analyse the requirements and determine the appropriate structures for designing and implementing a multimedia database application
- Select and specify technologies and techniques appropriate to mining a multimedia database
- Examine statistical methods for text analysis, appropriate technologies for image processing and moving images, and the transformations of audio data.
- Analyse the various issues involved in managing multimedia data for the electronic Enterprise
- Maintain and upgrade an operational database.

**Assessment Method:**

**50% Continuous Assessment**  
**50% Final Exam**

**Programme Code: KMULA\_D\_Y4**  
**Module:**  
**Offered: Semester 8**  
**Credits: 5**

**Objectives:**

This module gives the student the experience in fully developing a computing project based on a clear specification and plan( normally resulting from in project Systems Analysis and Design, Semester7) Following requirements gathering, prototyping and planning in the project Systems Analysis and Design module, the student now concentrates on the implementation of the project. The student, in consultation of the project. The student, in consultation with his/her supervisor, will tackle the implementation phase of the project usually in accordance with adopted development methodology or process. The student will present his/her work at the end of the module and submit a comprehensive final report.

On completion of this subject, the student should be able to:

- Analyse the role of entrepreneurship and new venture development in the contemporary business world
- Critically evaluate the various internal and external environment factors that impact on an enterprise
- Assess the legal and regulatory requirements in establishing and managing an enterprise
- Identify and analyse the financial aspects of strategic and business planning for new ventures
- Create and draft an effective business models
- Professionally present a new venture to a business audience

**Assessment Method: 100% Continuous Assessment**



**Programme Code: KMULA\_D\_Y4**

**Module: Instructional Design**

**Offered: Semester 8**

**Credits: 5**

**Objectives:**

Provide students with a detailed understanding of empirically-based principles in computer-based training and learning systems which instructional designers can employ to create applications that improve and optimise learning

On completion of this subject, the student should be able to:

- Assess and appraise current trends and technologies used in designing and developing instructional based systems
- Provide a summative evaluation of keys steps within the instructional design process

**Assessment Method: 50% Continuous Assessment, 50% Final Exam**

**Programme Code: KMULA\_D\_Y4**

**Module: Practical Graphic Design**

**Offered: Semester 8**

**Credits: 5**

**Objectives:**

The aim of this module is to give the student a fluency in visual problem solving within a multimedia environment and beyond

On completion of this subject, the student should be able to:

- Directly apply visual problem-solving theory to practice based graphic design work
- Apply a strong working knowledge of typographical elements.
- Demonstrate a strong technical knowledge of creating artwork for pre-press.
- Adapt and apply key visual graphic design principals to a screen-based environment.
- Confidently manage a graphic design project, from beginning to end

**Assessment Method:**

**100% Continuous Assessment**

**Programme Code: KMULA\_D\_Y4**

**Module: Digital Photography**

**Offered: Semester 8**

**Credits: 5**

**Objectives:**

Advance student's knowledge and skill in practical digital photography, and allow critical evaluation of its role in a multimedia context.

On completion of this subject, the student should be able to:

- Develop and realise photographic projects.
- Integrate key elements of photography in multimedia projects
- Apply key visual principals underlying digital image capture & editing
- Apply advanced techniques of image editing
- Demonstrate camera controls and advanced operations.

**Assessment Method: 100% Continuous Assessment**

**Programme Code: KMULA\_D\_Y4**

**Module: Digital marketing Skills**

**Offered: Semester 8**

**Credits: 5**

**Objectives:**

This module covers the fundamentals of digital marketing (DM) tools & technologies. Student will learn how to plan, design, execute and track effective digital marketing. (SEO, E-mail Marketing, Displays Advertising, Affiliate Programmes, Emerging Digital Media, Mobile marketing, Online PR)

On completion of this subject, the student should be able to:

- LO1. Plan & design a DM campaign demonstrating an understanding and awareness of existing and emerging digital marketing channels
- LO2. Execute a DM campaign using key channels.
- LO3. Track the success of DM campaigns using industry standard software tools techniques

**Assessment Method: 100% Continuous Assessment**

**Programme Code: KMULA\_D\_Y4**

**Module: Apple Macintosh Programming**

**Offered: Semester 8**

**Credits: 5**

**Objectives:**

This module introduces the student to application development using the Apple Macintosh Cocoa development framework. Students will learn how to develop applications using object-oriented techniques and will gain an understanding of Mac OS X architecture.

On completion of this subject, the student should be able to:

- Develop basic graphical user interface applications for Mac OS X.
- Understand how Cocoa applications are structured.
- Describe the Mac OS X operating system architecture.

**Assessment Method: 50% Continuous Assessment, 50% Final Exam**

**Programme Code: KMULA\_D\_Y4**

**Module: Video Commercial Editing & Effects**

**Offered: Semester 8**

**Credits: 5**

**Objectives:**

This module aims to:

- Be able to apply animation to video and text using effects
- To be able to edit and adjust color and distort multimedia objects using appropriate tools
- To be able to build and manipulate 3D objects using advanced editing techniques

On completion of this subject, the student should be able to:

- Apply animation and utilise effects
- Demonstrate a working knowledge of a range of tools available for the adjustment of color and distortion of multimedia objects
- Procedure and edit a short film incorporating 3D objects and special effects

**Assessment Method: 100% Continuous Assessment**

# School of Science

## Department of Chemical and Life Science

### Programme: Bachelor of Science in Horticulture – Years 2 and 3

#### Programme: **BSc in Horticulture (WD\_ SHORT\_D) Yr 2**

##### Module title: **Biodiversity and Horticulture**

Offered: Semester 1

Credits: 5 credits

This module introduces the student to the ethics of biodiversity and the role that horticulture can play in its conservation and development

##### Learning outcomes:

1. Describe the benefits that horticulture can make towards biodiversity in a range of scenarios
2. Describe the national and European regulations and laws in place to protect biodiversity
3. Discuss the importance of conserving biodiversity and the threats facing it
4. Identify native and alien species of flora and fauna
5. Prepare a limited EIS (or a biodiversity survey) for a designated site

##### Assessment method:

- 2 hr Written exam 50%
- Practical assessments 50%

#### Programme: **BSc in Horticulture (WD\_ SHORT\_D) Yr 2**

##### Module title: **Plant Identification and use**

Offered: Semester 1

Credits: 5 credits

This module enables the student to learn a wide range of plants, their cultural requirements and suitability for different planting situations

##### Learning outcomes:

1. Describe the importance of plants in the landscape
2. Identify ornamental perennials, annuals and bulbs according to their main features of horticultural merit
3. Identify ornamental trees and shrubs according to their main features of horticultural merit
4. Select appropriate plants based on site evaluation
5. Prepare a tree survey report

##### Assessment method

- 2 hr written exam 50%
- Continuous Assessment 50%

**Programme: BSc in Horticulture (WD\_ SHORT\_D) Yr 2**

**Module title: Landscape Design**

Offered: Semester 1

Credits: 10 credits

This module will enable students to design landscapes and to carry out the necessary practices associated with landscape design and to use drawing equipment. In addition the theoretical aspects will cover the principles of design, elements of design, history of design and garden styles

Learning outcomes:

1. Carry out linear and level surveying
2. Understand the principles of design and interpretation of plans and specifications
3. Design landscape projects
4. Draft designs to the detailed plan and specification stage
5. Apply good environmental and safety practices in surveying and levelling
6. Describe the elements of design, history of design and different styles that influence the design process

Assessment method

- Portfolio of drawings for selected site. Levelling and Surveying 50%
- 2 hr written Exam 50%

**Programme: BSc in Horticulture (WD\_ SHORT\_D) Yr 2**

**Module title: Nursery stock Production**

Offered: Semester 1

Credits: 10 credits

This module is designed to equip students with a knowledge of Nursery stock production, management and planning. Students will also learn nursery stock specific skills such as; planting, crop protection, IPM, and will perform cultural techniques in the production of trees. Plant health and exporting regulations are also covered

Learning outcomes:

1. Explain the production of bedding plants
2. Explain the production of open ground trees & shrubs
3. Explain the production of containerised trees & shrubs
4. Develop plan schedules and layout of a nursery
5. Operate in a safe working environment
6. Explain the production of liners
7. Perform a range of cultural tasks associated with Nursery stock production

Assessment method

- Written exam 2 hours 50%
- Continuous assessment 50%

Programme: **BSc in Horticulture (WD\_ SHORT\_D) Yr 2**

Module title: **Market Gardening**

Offered: Semester 1

Credits: 10 credits

The module will enable students to plan and describe the production of a range of speciality food crops and perform the associated practical skills to best industry practices

Learning outcomes:

1. Draw up production and marketing plans for salad onions, lettuce, celery, rhubarb, asparagus, courgettes and sweetcorn.
2. Draw up production and marketing plans for leeks, peas, french beans, beetroot, radish and spinach.
3. Draw up propagation and production plans for blueberries, blackberries and currants.
4. Appraise the production of herbs
5. Evaluate the economics of speciality food crops
6. Perform routine tasks associated with speciality crops
7. Describe and apply good environmental practices in growing speciality food crops
8. Describe and apply good practices for safety and health in growing speciality food crops

Assessment method

- 2 hr written exam 50%
- practicals /production assessment 50%

Programme: **BSc in Horticulture (WD\_ SHORT\_D) Yr 2**

Module title: **Turfgrass**

Offered: Semester 1

Credits: 10 credits

This module is aimed at enabling students to develop an understanding of the construction and maintenance of turf and artificial surfaces used for sports

Learning outcomes:

1. Describe a range of drainage and irrigation methods for turf
2. Describe a range of root zone construction media for turf
3. Discuss the merits of a range of soil types
4. Identify pests and diseases and determine cause and propose control methods
5. Describe and carry out a range of turfgrass maintenance techniques e.g. scarifying, topdressing, mowing, marking out
6. Describe and carry out operations in relation to turfgrass construction and maintenance

Assessment method

- 2 hr written paper 50%
- Practical assignments 25%
- Written assignments 25%

Programme: **BSc in Horticulture (WD\_ SHORT\_D) Yr 2**

Module title: **Floristry**

Offered: Semester 1

Credits: 5 credits

Students will learn to create a full range of floristry items

Learning outcomes:

1. Care for cut flowers and foliage identify floristry mechanics and their use in floristry
2. Appraise design in floristry
3. Assemble a range of floristry items appropriate for use in the commercial sector
4. Apply good health and safety practices

Assessment method

- 100% Practical assignments creating floral items, with a record of work in a portfolio

Programme: **BSc in Horticulture (WD\_ SHORT\_D) Yr 2**

Module title: **Protected Crop Production**

Offered: Semester 1

Credits: 5 credits

The student will be introduced to a range of protected structures, their environmental controls and various irrigation systems used. The module will enable the student to draw up management and production schedules for a range of crops in greenhouses using best industry practice

Learning outcomes:

1. Evaluate greenhouse structures and site requirements
2. Evaluate environmental and feeding systems
3. Draw up production and management schedules for cold greenhouses
4. Draw up production and management schedules for heated greenhouses
5. Describe and apply good environmental practices
6. Describe and apply good practices for safety and health

Assessment method

- Written theory exam 50%
- Practical assessments 50%

Programme: **BSc in Horticulture (WD\_ SHORT\_D) Yr 2**

Module title: **Garden Management**

Offered: Semester 1

Credits: 5 credits

This module will provide the student with the skills and knowledge required to develop and maintain a garden

Learning Outcomes;

1. Describe the growing of fruit and vegetable crops on a garden or estate scale
2. Describe the construction and maintenance of a water feature
3. Select apply and demonstrate appropriate garden maintenance techniques e.g planting, pruning, weeding, mowing edging, general grounds maintenance
4. Devise, plan and specify a planting plan for a mixed border
5. Parks and Estate management/layout/history/design
6. Principles and design layout of borders

Assessment method

- Continuous Assessment 50% practicals/Design borders/Management Plan
- Written Exam 50%

Programme: **BSc in Horticulture (WD\_ SHORT\_D) Yr 3**

Module title: **Project Research**

Offered: Semester 1

Credits: 5 credits

Project Research is designed to equip students to devise and plan a project related to the course which they will complete in the following semester. They will learn how to undertake an extensive critical appraisal of available literature and compose a detailed literature review. They will develop a project proposal.

Learning Outcomes;

1. Devise and plan a project related to the course
2. Undertake an extensive critical appraisal of available literature
3. Compose a detailed literature review
4. Write a project proposal

Assessment method

- Class assignments and critique of associated literature
- Assessment of the research proposal
- Assessment of the final Literature Review by co-supervisors
- All items must be completed on time failure to submit will result in a loss marks

Programme: **BSc in Horticulture (WD\_ SHORT\_D) Yr 3**

Module title: **Project Implementation**

Offered: Semester 2

Credits: 5 credits

Project Implementation will enable the student to carry out the developed research proposal and analyse the findings. They will give an oral and computer assisted presentation of their research, findings conclusions and recommendations to staff and students

Learning Outcomes;

1. Execute their research proposal
2. Analyse the results
3. Draw conclusions
4. Make recommendations
5. Make a presentation based on their findings

Assessment method

- Assessment of the project research, findings, conclusions recommendations by co-supervisors
- Assessment of the presentation of the Project by co-supervisors

Programme: **BSc in Horticulture (WD\_ SHORT\_D) Yr 3**

Module title: **Garden Centre Operations**

Offered: Semester 2

Credits: 5 credits

This module is designed to equip students with a knowledge of garden centre management and planning. Students will also learn about the promotion and sales methods, display and maintenance of garden centre plants. The student will learn how to critique a garden centre

Learning outcomes

1. Make recommendations on garden centre planning
2. Plan customer flow and product displays
3. Identify different sales techniques
4. Analyse business and cash flow plans for garden centre
5. Implement a safe working environment
6. Critique a garden centre layout

Assessment method

- 2 hr final exam 50%
- critique of garden centre 25%
- practical exercises 25%

Programme: **BSc in Horticulture (WD\_ SHORT\_D) Yr 3**

Module title: **CAD**

Offered: Semester 2

Credits: 5 credits

To enable students to be able to produce simple landscape design plans using CAD, and to print out drawings to scale

Learning outcomes

1. Complete simple landscape drawing using CAD, save files and print drawing to scale

Assessment method

- Continuous assessment 100% Production of design plan, using CAD

Programme: **BSc in Horticulture (WD\_ SHORT\_D) Yr 3**

Module title: **Greenkeeping**

Offered: Semester 2

Credits: 5 credits

This subject is aimed at enabling students to develop an understanding of the maintenance, management and construction of modern golf courses. Students are required to have completed *Turfgrass* from semester 1

Learning outcomes

1. Carry out operations in golf course maintenance
2. Describe principals of golf course construction
3. Assess a golf course for environmentally sound management techniques
4. Describe environmentally sound management techniques
5. Describe principals of golf course management

Assessment method

- 2 hr written paper 50%
- Practical assignments 25%
- Written assignments 25%



Programme: **BSc in Horticulture (WD\_ SHORT\_D) Yr 3**

Module title: **Horticultural Therapy**

Offered: Semester 2

Credits: 5 credits

This module will provide students with an opportunity to review current practices in horticultural therapy and to gain an understanding of the benefits and uses of horticulture for the needs of different groups

#### Learning outcomes

1. Describe the origins of horticultural therapy
2. Discuss the applications of Horticultural therapy
3. Describe and recommend a range of tools and suitable plants available
4. Evaluate an existing programme

#### Assessment method

- Assessment Case Study 20%
- Written Exam 80%

Programme: **BSc in Horticulture (WD\_ SHORT\_D) Yr 3**

Module title: **Interior Landscaping**

Offered: Semester 2

Credits: 5 credits

This module will enable the student to identify, select and understand the use of a wide range of interior plants

#### Learning outcomes

1. Outline potential applications of interior landscaping
2. Appraise features of good design in interior landscaping
3. Carry out an environment evaluation
4. Plan maintenance programme for range of interior plant displays
5. Identify Interior Plants

#### Assessment method

- 2 hr Written Theory Exam 80%
- Site assessment and plant materials 20%

Programme: **BSc in Horticulture (WD\_ SHORT\_D) Yr 3**

Module title: **Field Crop Production**

Offered: Semester 2

Credits: 5 credits

The module will enable the student to plan and describe the production of a range of food crops at a large field scale and perform the associated skills to best industry practices.

#### Learning outcomes

1. Describe the production of brassicas & root crops
2. Describe the production of onions & potatoes
3. Describe the production of strawberries and other fruits
4. Plan a production programme for 25ha of mixed vegetables
5. State the economics of producing food crops
6. Perform skills associated with vegetable & fruit production
7. Describe and apply good environmental practices in food crop production
8. Describe and apply good practices for safety & health in food crop production

#### Assessment method

- 2 hr written theory exam 50%
- Continuous assessment 50%

Programme: **BSc in Horticulture (WD\_SHORT\_D) Yr 3**

Module title: **Landscape Design Advanced**

Offered: Semester 2

Credits: 5 credits

This module will enable students to design public sites. Students are required to have completed *Landscape design* from Semester 1

Learning outcomes

1. Survey and analyse public sites
2. Design an appropriate design meeting the needs of the client and working within the constraints of the site
3. Draft a management plan and or costings for selected site
4. Draft a variety of drawings types

Assessment method

- Portfolio of drawings for selected site 100%