Institiúid Teicneolaíochta Leitir Ceanainn
Letterkenny Institute of Technology

Department of Computing

Course: Postgraduate Diploma in Computing in Cloud Technologies

Module Title: Computer Systems Programming

Credits:	10
Credit Level:	9
Prerequisite Modules:	None

Description:

To provide the student with the theoretical and applied skills to use contemporary programming techniques in an enterprise or data centre environment, both from the theoretical perspective and as an applied discipline.

Module Learning Outcomes:

On successful completion of this module the learner will be able to:

1. Utilise the core syntax and features of a contemporary object oriented language.
2. Implement the basic structure and essential elements of a typical desktop application.
3. Create classes, define and implement interfaces, and create and use generic collections.
4. Use inheritance to create a class hierarchy and create generic classes and methods.
5. Analyse and deploy appropriate security algorithms.
6. Evaluate and implement best practices for code reuse, modularity, security and testing.
7. Implement best practice to interact and utilise networked and cloud-hosted database systems.

Indicative Content:

1. Introduction
2. Language
3. OO Programming and Object Reuse
4. Data Access

Module Assessment:

Coursework	*100%*
End of Semester Final Exam	*0%*

Department of Computing

Course: Postgraduate Diploma in Computing in Cloud Technologies

Module Title: Virtual Server Administration

Credits:	10
Credit Level:	9
Prerequisite Modules:	None

Description:

To provide the student with skills set to evaluate, install, configure and administer a virtual server system using appropriate technologies. The course engages students in a heavily task-based activities and facilitates discussions to ensure maximum skills transfer.

Module Learning Outcomes:

On successful completion of this module the learner will be able to:

1. Perform administrative tasks required in a service based environment.
2. Defend the design of a host and virtual server environment for specific application purposes.
3. Select and implement the management tools and techniques necessary for a virtualized environment.
4. Evaluate virtual server security issues and implement strategies to secure services in the cloud.
5. Plan and implement provisioning, monitoring and preventive maintenance in a server environment.
6. Devise and critique solutions to particular service requirements for a range of common services.

Indicative Content:

1. Basic Administration
2. File Systems and Data Management
3. System Monitoring & Maintenance
4. Services

Module Assessment:

Coursework	*100%*
End of Semester Final Exam	*0%*

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Department of Computing

Course: Postgraduate Diploma in Computing in Cloud Technologies

Module Title: Advanced Database Development

Credits:	10
Credit Level:	9
Prerequisite Modules:	None

Description:

To provide the student with the theoretical and applied skills to use RDBMS technology in an enterprise or data centre environment, both from the theoretical perspective and as an applied discipline. The module assumes a pre-requisite competence in database theory and RDBMS.

Module Learning Outcomes:

On successful completion of this module the learner will be able to:

1. Utilise the core features of a modern RDBMS
2. Implement best practice in database design for application development
3. Implement server side code and understand how this may be used for integration and middleware
4. Implement reporting services
5. Implement complex analysis algorithms
6. Critique and justify selection of a Cloud platform to facilitate infrastructure demands of the developed system

Indicative Content:

1. Introduction
2. Database Development
3. Reporting
4. Embedding Code at the Server
5. Cloud Implementation

Module Assessment:

Coursework	*100%*
End of Semester Final Exam	*0%*

Institiúid Teicneolaíochta Leitir Ceanainn
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Department of Computing

Course: Postgraduate Diploma in Computing in Cloud Technologies

Module Title: Enterprise & Data Centre Networking

Credits:	10
Credit Level:	9
Prerequisite Modules:	None

Description:

To provide the student with a solid grounding in network infrastructure requirements and practices both from the theoretical perspective and as an applied discipline.

Module Learning Outcomes:

On successful completion of this module the learner will be able to:

1. Apply knowledge of protocols and practices in local area network design.
2. Design and/or audit the necessary ICT infrastructure appropriate to business requirements.
3. Justify the appropriateness of technologies available for secure wide area connectivity and formulate models for their application.
4. Apply best practise of security practices and their application.
5. Evaluate, review and formulate strategies for logging, detection and response systems focussed on protecting critical infrastructure.

Indicative Content:

1. Physical Network Design
2. LAN Network Design
3. WAN Network Design
4. Zones & Perimeters

Module Assessment:

Coursework	*100%*
End of Semester Final Exam	*0%*

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Department of Computing

Course: Postgraduate Diploma in Computing in Cloud Technologies

Module Title: Private Cloud Technologies

Credits:	10
Credit Level:	9
Prerequisite Modules:	None

Description:

To provide the student with the theoretical and applied skills to use virtualization technology in an enterprise or data centre environment, both from the theoretical perspective and as an applied discipline.

Module Learning Outcomes:

On successful completion of this module the learner will be able to:

1. Apply detailed knowledge of architectures and practices in desktop and server virtualization.
2. Plan the selection of hardware platforms suited to the scale of business requirements.
3. Evaluate, select and configure appropriate compute, network and storage virtualization for specific purposes.
4. Implement security, management and business continuity strategies suited to a virtualized infrastructure.
5. Utilise data centre scale management tools.

Indicative Content:

1. Hardware Platforms
2. Virtual hosts in the data centre
3. Data centre scale management
4. Securing the infrastructure

Module Assessment:

Coursework	*100%*
End of Semester Final Exam	*0%*

Institiúid Teicneolaíochta Leitir Ceanainn
Letterkenny Institute of Technology

Department of Computing

Course: Postgraduate Diploma in Computing in Cloud Technologies

Module Title: Placement

Note: 35HPW * 8 Weeks = 280 Hours in total

Credits:	10
Credit Level:	9
Prerequisite Modules:	None

Description:

This module aims to give students operational experience of best practice in the design, configuration and management of private cloud systems to meet business objectives. Students will also be given the opportunity to work with technologies for business solutions implemented in a commercial private cloud environment. Students will be exposed to a professional working environment with the objective of maximising their employability and future career prospects whilst providing employers with highly capable staff who can demonstrate and apply their technical skills to real-world situation.

Module Learning Outcomes:

On successful completion of this module the learner will be able to:

1. Explore the varied environments through which private cloud systems are designed, realised and deployed.
2. Represent a problem, apply design and research skills in the implementation and use of the private cloud and pursue appropriate approaches to solving the problem
3. Identify, explore and make informed judgements relating to the design, monitoring and management of private cloud based systems.
4. Reflect upon their industry led learning experience and organisational skills to aid life-long learning and continuing professional development
5. Exercise professional and ethical judgement in decision making and communication within a working environment
6. Apply research, information gathering, critical analysis, design and implementation techniques appropriately and effectively
7. Communicate effectively in order to enhance the understanding and engagement of a professional audience.

Indicative Content:

1. Industrial Placement Monitoring
2. Alternative Project
3. Industrial Placement Assessment

Module Assessment:

1. Log Book
2. Learning Outcomes/ Weekly Learning Report
3. Industry Mentors Assessment
4. Interviews
5. Conclusion
6. Presentation