F21AO Applied Development and Operations (DevOps)

### COURSE DETAILS

**Course Code:** F21AO  
**Full Course Title:** Applied Development and Operations (DevOps)  
**SCQF Level:** 11  
**SCAF Credits:** 15  
**Available as Elective:** No

### DELIVERY LEVEL

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### COURSE AIMS

In this course, students will primarily develop understanding of both theoretical and practical knowledge and skills in applied development and operations. The course aims are:

- To instill understanding of the concepts and benefits of applied software engineering methods
- To provide knowledge of change and configuration management
- To develop understanding of software deployment architecture
- To give practical experience of continuous integration methods
- To consolidate proficiency in version control and code management
- To give practical experience of deployment and delivery techniques
- To give further practical experience of staging, testing and continuous testing

### LEARNING OUTCOMES – SUBJECT MASTERY

- Ability to choose a suitable software development environment and development methodology for specific software development tasks and justify the choice
- Demonstration of skills in the use of virtualization and containerization in development, deployment and testing practices
- Understanding of key concepts and application of change and configuration management
- Demonstration of critical understanding of applied software architecture in cloud and virtual environments and ability to evaluate their appropriateness in different situations
- Demonstration of skill in design and implementation of continuous testing and continuous integration approach in enterprise development environment
- Demonstration of critical understanding of team approach to staging, software testing and production life cycle
- Understanding of key security concepts and application during software development and operations

### LEARNING OUTCOMES – PERSONAL ABILITIES

- Appreciation of use of methodology to ground system analysis, design and development and change/problem management process
- Understanding of source control, staging, testing and deployment
- Practice in working in a group, choosing a methodology, reaching a consensus, and working with others to
F21AO Applied Development and Operations (DevOps)

- develop, test and deliver software projects
  - Taking responsibility for own work, taking responsibility in the development of resources, critical reflection on development, testing and deployment process
  - Effective appreciation of professional standards in the change management, code management, and testing
  - Showing initiative, creativity and team working skills in collaborative software development

SYLLABUS

- Source Control: code management, secure source control, code build,
- Code pipelines: staging, pre-production and production environment setting and deployment
- Architectures: monolithic, microservices, virtualization and container orchestration
- Methodologies in software engineering practice; Agile, Scrum
- Relevant technologies: version control, staging and pipelines, virtual machines, containers, platforms

Pre-requisites: Programming and software engineering knowledge and skills.

COURSE RELATIONSHIPS

N/A

LOCATION AND ASSESSMENT METHODS

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