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
Undergraduate: No  Postgraduate Taught: Yes  Postgraduate Research: No

Additional Information:

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.

LOCATION AND ASSESSMENT METHODS

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