F21AO Applied Development and Operations (DevOps)

**COURSE DETAILS**

<table>
<thead>
<tr>
<th>Course Code</th>
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<tr>
<td>Full Course Title</td>
<td>Applied Development and Operations (DevOps)</td>
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<tr>
<td>SCQF Level</td>
<td>11</td>
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<tr>
<td>SCAF Credits</td>
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<tr>
<td>Available as Elective</td>
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**DELIVERY LEVEL**

<table>
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<tr>
<th>Undergraduate</th>
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<tr>
<td>Postgraduate Taught</td>
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<tr>
<td>Postgraduate Research</td>
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**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
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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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<tr>
<th>Edi</th>
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