F21AN Advanced Network Security

### COURSE DETAILS

**Course Code:** F21AN  
**Full Course Title:** Advanced Network Security  
**SCQF Level:** 11  
**SCAF Credits:** 15  
**Available as Elective:** Yes

### DELIVERY LEVEL

<table>
<thead>
<tr>
<th>Undergraduate:</th>
<th>Yes</th>
<th>Postgraduate Taught:</th>
<th>Yes</th>
<th>Postgraduate Research:</th>
<th>No</th>
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<td><strong>Additional Information:</strong></td>
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### COURSE AIMS

- Improve students’ critical analysis skills in computer network security and allow them to identify network security threats in a systematic way.  
- Provide the student with in-depth understanding of penetration testing concepts and methodologies.  
- Give practical experience of exploiting vulnerabilities in common computer system architectures.  
- Impart a deep understanding of common techniques to implement countermeasures.

### LEARNING OUTCOMES – SUBJECT MASTERY

At the end of this course, the students will be able to:

- Identify and explain vulnerabilities of network protocols.  
- Design and implement countermeasures to protect a network from unauthorised network access.  
- Identify threats and implement measures to protect against threats in wireless networks.  
- Test and evaluate the security of an IT infrastructure.

### LEARNING OUTCOMES – PERSONAL ABILITIES

- Ability to critically appraise the security of an IT infrastructure.  
- Showing teamwork skills and being an effective member of a penetration testing team.  
- Develop a set of ethical best practices needed for a security career.  
- Ability to make decisions regarding how to secure a system in absence of a complete picture of its configuration.

### SYLLABUS

- Wireless Security: Wired Equivalent Privacy (WEP) vulnerabilities, Wireless Protected Access (WPA) and IEEE802.11i.  
- Penetration testing: penetration testing process: Reconnaissance, Scanning, Gaining access, Maintaining...
access, and Covering tracks.
- Digital Forensics: introduction, EnCase and open source tools.
- Privacy and P3P.

**Information on Pre-requisites:**

A good understanding of fundamental computer security topics such as might be obtained by taking F21 CN Computer Network Security is pre-requisite.

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<th>LOCATION AND ASSESSMENT METHODS</th>
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