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

DELIVERY LEVEL
Undergraduate: Yes
Postgraduate Taught: Yes
Postgraduate Research: No

ADDITIONAL INFORMATION:

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
• Internet Security: review of some TCP/IP stack Protocols and their known vulnerabilities.
• Wireless Security: Wired Equivalent Privacy (WEP) vulnerabilities, Wireless Protected Access (WPA) and IEEE802.11i
• Penetration testing: penetration testing process: Reconnaissance, Scanning, Gaining access, Maintaining...
F21AN Advanced Network Security

- 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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| Y   | Y   |     |     |       |     |      |     |     | Examination  | 60     | 120       | Assessment      | Semester 2    |                |
| Y   | Y   |     |     |       |     |      |     |     | Coursework   | 40     |           | Assessment      | Semester 2    |                |
| Y   | Y   |     |     |       |     |      |     |     | Examination  | 100    | 120       | Reassessment    | Semester 3    |                |