F20AN Advanced Network Security

COURSE DETAILS
Course Code: F20AN
Full Course Title: Advanced Network Security
SCQF Level: 10
SCAF Credits: 15
Available as Elective: No

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

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

LEARNING OUTCOMES – SUBJECT MASTERY
• Identify and explain vulnerabilities of network protocols vulnerabilities.
• Design countermeasures to protect a network from unauthorised network access.
• Identify threats and measures to protect against threats in wireless networks.
• Test and evaluate the security of an IT infrastructure.

LEARNING OUTCOMES – PERSONAL ABILITIES
• Develop a set of ethical best practices for a security career.
• Ability to make decisions regarding how to secure a system in absence of a complete picture of its configuration.

Showing teamwork skills and being an effective member of a penetration testing team.

Ability to appraise the security of an IT infrastructure.

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 access, and Covering tracks.
Digital Forensics: introduction, EnCase and open source tools.
Privacy and P3P.

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<td>F29DC</td>
<td>9</td>
<td>Data Communications and Networking</td>
<td>School of Math and Comp Sci.</td>
<td>Pre-Requisite</td>
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