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 commons 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
F20AN Advanced Network Security

- 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.

### COURSE RELATIONSHIPS

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Level</th>
<th>Title</th>
<th>School</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>F29DC</td>
<td>9</td>
<td>Data Communications and Networking</td>
<td>School of Math and Comp Sci.</td>
<td>Pre-Requisite</td>
</tr>
</tbody>
</table>

### LOCATION AND ASSESSMENT METHODS

<table>
<thead>
<tr>
<th>Edi</th>
<th>SBC</th>
<th>Ork</th>
<th>Dub</th>
<th>Malay</th>
<th>IDL</th>
<th>COLL</th>
<th>ALP</th>
<th>OTH</th>
<th>Method</th>
<th>Weight</th>
<th>Exam Mins</th>
<th>Type</th>
<th>Diet</th>
<th>Synoptic Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y</td>
<td>Y</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Examination</td>
<td>60</td>
<td>120</td>
<td>Assessment</td>
<td>Semester 2</td>
<td></td>
</tr>
<tr>
<td>Y</td>
<td>Y</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Coursework</td>
<td>40</td>
<td></td>
<td>Assessment</td>
<td>Semester 2</td>
<td></td>
</tr>
</tbody>
</table>