



**Prifysgol Cymru**  
Y Drindod Dewi Sant  
**University of Wales**  
Trinity Saint David

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**BSc Cloud Computing**  
**Birmingham Campus**

**Advanced Cybersecurity**  
**ACCB6000**

|                       |                                |
|-----------------------|--------------------------------|
| <b>Module Code</b>    | <b>ACCB6000</b>                |
| <b>Title</b>          | <b>Advanced Cyber Security</b> |
| <b>Date</b>           | <b>09/09/2020</b>              |
| <b>Level</b>          | <b>6</b>                       |
| <b>Credits</b>        | <b>20</b>                      |
| <b>Pre-Requisites</b> | <b>None</b>                    |

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### **AIM(S)**

- To provide students with Cyber Security concepts and a deep understanding of how they are applied using Internet technologies. Students will gain a thorough understanding of up-to-date security threats and vulnerabilities posed to the Internet and an understanding of the legal, policy and technical approaches that are necessary to mitigate such risks.

### **LEARNING OUTCOMES**

Upon the successful completion of this module, the student should be able to:

- Demonstrate a systematic understanding of a wide range of current research and technological advances in Cyber Security.
- Consistently apply the principles and practices of Cyber Security for mitigating the key technical internet security vulnerabilities and threats that organisations face.

### **INDICATIVE CONTENT**

- Fundamentals of Computer Security.
- Networking Concepts.
- Cryptography.
- Internet Security Technologies.
- Security of Computer Communications.
- Wireless Security.
- Windows Security.
- Linux Security.
- Web Applications and Security.
- Defensive Network Infrastructure – Intrusion Detection/Firewalls.
- Malware, Virus and Worms.
- Network Traffic Analysis and Forensics using Wireshark.
- Data Loss Prevention.

- Penetration Testing.

## Study Time Allocation

The study time for the module is divided as follows:

| Activity type        | Hours      | Percentage  |
|----------------------|------------|-------------|
| Scheduled learning   | 48         | 24%         |
| Independent learning | 152        | 76%         |
| Placement learning   | 0          | 0%          |
| <b>TOTAL</b>         | <b>200</b> | <b>100%</b> |

## ASSESSMENT

### Assessment Component 1

☐ Written exam      ☒ Coursework      ☐ Practical

| Mode of assessment | Volume                | Weighting |
|--------------------|-----------------------|-----------|
| Portfolio          | 5000 words equivalent | 100%      |

### Assessment Summary

| Activity type | Percentage  |
|---------------|-------------|
| Written exam  | 0%          |
| Coursework    | 100%        |
| Practical     | 0%          |
| <b>TOTAL</b>  | <b>100%</b> |

## INDICATIVE READING LIST

| Module Code    | ACCB6000                                                                                                                                                                                                                   |                                     |
|----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
| Module Title   | Advanced Cyber Security                                                                                                                                                                                                    |                                     |
| Classification | Reading List entry                                                                                                                                                                                                         | Electronic*                         |
| Essential      | The Web Application Hacker's Handbook: Finding and Exploiting Security Flaws, 2ed. Author: D. Stuttard.                                                                                                                    | <input checked="" type="checkbox"/> |
| Essential      | Cisco CyberOps Associate CBROPS 200-201 Official Cert Guide By Omar Santos Published Dec 10, 2020 by Cisco Press. Part of the Certification Guide series. Copyright 2021 ISBN-10: 0-13-680783-6 ISBN-13: 978-0-13-680783-4 | <input checked="" type="checkbox"/> |
| Essential      | Cracking the Coding Interview: 189 Programming Questions and Solutions 6th Edition. Author: Gayle Laakmann.                                                                                                                | <input checked="" type="checkbox"/> |
| Essential      | Penetration testing: protecting networks and systems, 1st edition. Author: K. M. Henry                                                                                                                                     | <input checked="" type="checkbox"/> |
| Essential      | Cyber Insecurity: Navigating the Perils of the Next Information Age. Author: Richard Harrison.                                                                                                                             | <input checked="" type="checkbox"/> |
| Essential      | Counter Hack Reloaded: A Step-by-Step Guide to Computer Attacks and Effective Defenses (2nd Edition) 2nd Edition. Authors: Edward Skoudis, and Tom Liston.                                                                 | <input checked="" type="checkbox"/> |
| Essential      | <a href="http://www.netacad.com">www.netacad.com</a> username & password required                                                                                                                                          | <input checked="" type="checkbox"/> |
| Further        | Applied Cryptography: Protocols, Algorithms and Source Code in C. Author: Bruce Schneir. (2015)                                                                                                                            | <input checked="" type="checkbox"/> |
| Further        | The Art of Exploitation, 2nd Edition. Author: Jon Erickson.                                                                                                                                                                | <input type="checkbox"/>            |

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|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
| Further | Beginner to Expert Guide to Computer Hacking, Basic Security, and Penetration Testing (Computer Science Series) Kindle Edition. Author: James Patterson.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <input type="checkbox"/>            |
| Further | Hacking for Beginners – Computer Virus, Cracking, Malware, IT Security (Cyber Crime, Computer Hacking, How to Hack, Hacker, Computer Crime, Network Security, Software Security), Author: Joseph Connor.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <input type="checkbox"/>            |
| Further | <b>Journals</b><br>IEEE/ACM, IEEE/ACM Transactions on Networking<br>IEEE, IEEE Network Magazine<br>Science Direct<br>Scopus<br>ACM Transactions on Database Systems<br>ACM Transactions on Information Systems                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <input checked="" type="checkbox"/> |
| Further | <b>Websites</b><br><a href="http://www.veracode.com/directory/owasp-top-10">http://www.veracode.com/directory/owasp-top-10</a><br><a href="http://www.vulnerabilityassessment.co.uk/Penetration%20Test.html">http://www.vulnerabilityassessment.co.uk/Penetration%20Test.html</a><br><a href="http://www.softwaretestinghelp.com/penetration-testing-tools/">http://www.softwaretestinghelp.com/penetration-testing-tools/</a><br><a href="https://www.owasp.org/index.php/Main_Page">https://www.owasp.org/index.php/Main_Page</a><br>DoD Cyber Crime Center ( <a href="http://www.dc3.mil">http://www.dc3.mil</a> )<br><a href="http://www.digitalforensicsmagazine.com/">http://www.digitalforensicsmagazine.com/</a><br><a href="http://www.dvwa.co.uk">www.dvwa.co.uk</a> | <input checked="" type="checkbox"/> |