COS6008-B: Cyber Security Introduction

Objectives

- Introduce the module
- Module assessment
- Study requirements
- Set context for learning and teaching
- Provide overview of the cyber security environment
- Consider employability opportunities in cyber security

Module Teaching

- Module leader: Dr Ibrahim Ghafir
  - Assistant Professor in Computer Science
  - Programme Leader of BSc Computer Science for Cyber Security
  - Research interests: Network security, intrusion detection systems, wireless communication, Internet of Things, artificial intelligence and machine learning
  - Projects: Cyber-2, Cyber Security Challenges for Internet of Things and Core Networks
  - Google Scholar profile
  - Email: I.Ghafir@bradford.ac.uk
  - Office: Horton D 4.05

https://scholar.google.com/citations?user=kGsp2X0AAAAJ&hl=en

Module Teaching

- 20 Credit Module: 3 hours per week
  - 12 hours Lectures
  - 12 hours Tutorials
  - 12 hours Laboratories
  - 164 hours Directed Study

- Tutorial and Lab sessions:
  - Materials are on Canvas
  - You must fill in the lab rooms in this order: Horton D1.04, D1.02
  - If there are available spaces in Horton D1.04, the lecturer will not visit Horton D1.02

Module Topics

- Concepts in cyber security
- Principles in secure design
- Managing risks, threats and attacks
- Computer security
- Network security
- Internet security
- Network security controls
- Advanced Persistent Threat
- Tor network, virtual private network, dark web
- Security in emerging technologies
- Legal, social, ethical and professional issues in the context of cyber security

Module Assessment

Mode	Assessment description	How long/ When	Weight
Computerised examination	Questions/exercises to test the knowledge and understanding of the theoretical and practical concepts – Closed book	1 Hour, around Week 5-6	30%
Computerised examination	Questions/exercises to test the knowledge and understanding of the theoretical and practical concepts – Closed book	1 Hour, around Week 11-12	70%

Module Assessment

- CW extension and extenuating circumstances
  - Module leaders cannot approve/reject these requests
  - e-vision
  - programme administrator
- Supplementary assessment
  - June –August
  - Mark might be capped at 40%
  - Graduation

Module Learning Outcomes

- Analyse, discuss and explain the nature of cybercrime and the ethical, technical, and legal issues involved.
- Develop and explain solutions for effectively securing computer networks and electronic systems.
- Demonstrate skills of research, problem-solving and communication. Be a self-directed, independent learner who shows initiative and personal responsibility.

Module Materials

- Available in CANVAS
- The lecture notes put on CANVAS may not cover the lecture topic in depth
- A list of books will be suggested
- Recent research papers will be recommended over the lecture sessions

Suggested Reading

- William Stallings (2019). Effective Cybersecurity: A Guide to Using Best Practices and Standards.
- William Stallings (2017). Network security essentials: Applications and standards.
- Chris McNab (2017). Network security assessment: know your network.
- Aditya K. Sood; Richard J. Enbody (2014). Targeted cyber attacks: multi-staged attacks driven by exploits and malware.
- Pfleeger, C. P., Pfleeger, S. L. and Margulies, J., (2015) Security in Computing, 5th edition, Prentice Hall.
- Goodrich and Tamassia (2014) Introduction to Computer Security: Bazzell (2013) Personal Digital Security: Protecting Yourself from Online Crime.
- Rao, U. H. and Nayak, U., (2014) “The InfoSec Handbook: An Introduction to Information Security”.
- Shostack, A., (2014) Threat Modeling: Designing for Security, John Wiley and Sons.
- Besides, you are expected to read current academic research papers. Some suggestions will be made within lecture sessions.

Attendance Policy & Student Engagement

- Attendance is monitored via a "Check In" system using your student card
- Card readers in almost all teaching spaces
- Touch the card to the reader no more than 15 minutes before the start of the timetabled session
  - Green tick indicated a successful check in – visit MyBradford if you have card problems

Student Engagement policy

- 3 stage process with PAT involvement if your attendance drops below thresholds (75% currently but this is already bad for your learning!)
- Can impact student loans, grants, visas and will lead to you being withdrawn from your programme after stage 3

Classroom Behaviour

- Respect and listen to your teaching staff and peers.
- Respect each other's ideas and opinions even if you disagree with them.
- Mobile phones should be muted - exceptions will be given for emergencies etc.
- Arrive on time for class
- No music on phones or via YouTube.
- Be cool to one another ☺
- Disruptions in lectures will not be tolerated at all

- Positive questions, commentes and effective engagement
- If you have any special learning requirements, recorded in e-vision, please talk to me or send me an email. Please rest assured that the required support will be provided.