Launching into Cybersecurity – Units 10 - 12

This 12-week module introduces the various core elements of the MSc. Cybersecurity programme at the University of Essex Online. It intends to ensure a basic understanding of the primary skills covered in complete detail during all relevant modules. It also provides insight and understanding of how the different practices and occupational roles combine to offer a robust body of knowledge and skillset required to succeed in the field. Furthermore, it is beneficial to all who would master this critical field to gain a fuller understanding of the contribution and importance of all elements. As the units tend to build one upon another and contain summary review and reflection every few units, these note entries will follow a similar track and cover three units in each.

This unit summary covers units between 10 - 12, and the stated unit outcomes are:

- Understand the concepts and principles of web applications development.
- Appraise the techniques and frameworks for secure web application development.
- Develop an awareness and understanding of the industry standards and guidelines for

securing web applications.

- Implement the MVC architecture for web application.
- Implement security libraries for user access controls, verification, and authentications.
- Apply the concepts and principles of web applications development.
- Develop the ability to evaluate frameworks for secure web application development.
- Apply industry standards and guidelines to secure web applications.
- Develop an awareness of emerging trend and future developments in Cyber Security.
- Engage with research activities in the various areas of Cyber Security.
- Understand the implications of future developments on privacy and data confidentiality.

Progressive Learning Experience

Viewed lecturecast: A look into the future of Cyber Security. Explored current, ongoing research activities and future forecasting of emerging technologies for improved cybersecurity and privacy.

The end module project is completed, including python code to address one of the security challenges noted in the technical report of unit 9. The code outline and python code with results can be viewed separately via the link provided in the readme.md file.

Personal Take-Away for Units 10 - 12

The end module project helped accumulate coding knowledge, which is considered crucial in analysing software and database structure during security reviews.

Essential Readings

During these units, following reading assignments are completed

- *Mandez, M. (2014) The Missing Link: An Introduction to Web Development and Programming. Createspace Independent Publishers.*

- *Behrens, M. (2012) The Django Book. Sphinx. Available from https://django-book.readthedocs.io/en/latest/index.html Contributor, MDN. (2019) MVC, Mozilla.*
- *Maras, M.H. (2015) Internet of Things: security and privacy implications. International Data Privacy Law 5(2).*

Additional Readings

During these units, following reading assignments are completed

- *Guide, G. (2020) Web programming languages: the best languages for web development. IONOS.*
- *Netspaker Security Team (2019) Getting Started with Web Application Security application-security.*
- *Williams, L. (2019) Secure Software Life Cycle Knowledge Area Issue 1. The Cyber Security Body of Knowledge.*
- *Rashid, A., Nautiyal, L. & Rigby, Y. (2020) Cyber Security at Scale: Challenges for Research, Education and Training. The Cyber Security Body Of Knowledge.*
- *Shi, W. & Dustdar, S. (2016) The promise of edge computing. Computer 49(5): 78-81. Xu, X. (2012) From cloud computing to cloud manufacturing. Robotics and computer integrated manufacturing. 28(1): 75-86.*
- *Miraz, M.H., Ali, M., Excell, P.S. & Picking, R. (2015) A review on Internet of Things (IoT), Internet of everything (IoE) and Internet of nano things (IoNT). In 2015 Internet Technologies and Applications (ITA) IEEE pp.219-224.*
- *Li, S., Da Xu, L. & Zhao, S. (2018) 5G Internet of Things: A survey. Journal of Industrial Information Integration. 10:1-9.*
- *Balasubramaniam, S. & Kangasharju, J. (2012). Realising the internet of nano things: challenges, solutions, and applications. Computer 46(2): 62-68.*