

## Current state and future directions

### **Awais Rashid**

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## Welcome to new Executive Board Members



**Andrew Martin** 



Yulia Cherdantseva



**Rod Chapman** 



**Helen Jones** 



Steve Schneider



Marina Krotofil



Technology

## Flaw prompts 100 hack attacks a minute, security company says

(1) 13 December 2021





A flaw in widely used computer code is prompting 100 new hacking attempts every minute, a security company says.

Sport

News

Sounds

#### NEWS

Home | Ukraine conflict | Coronavirus | Climate | UK | World | Business | Politics | Tech | Science | Health

Technology

### Flaw prompts 100 hack attacks a minute, security company says

(§ 13 December 2021





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#### NEWS

Home | Ukraine conflict | Coronavirus | Climate | UK | World | Business | Politics | Tech | Science | Health

Technology

#### Ukraine crisis: 'Wiper' discovered in latest cyber-attacks

By Joe Tidy Cyber reporter

3 days ago

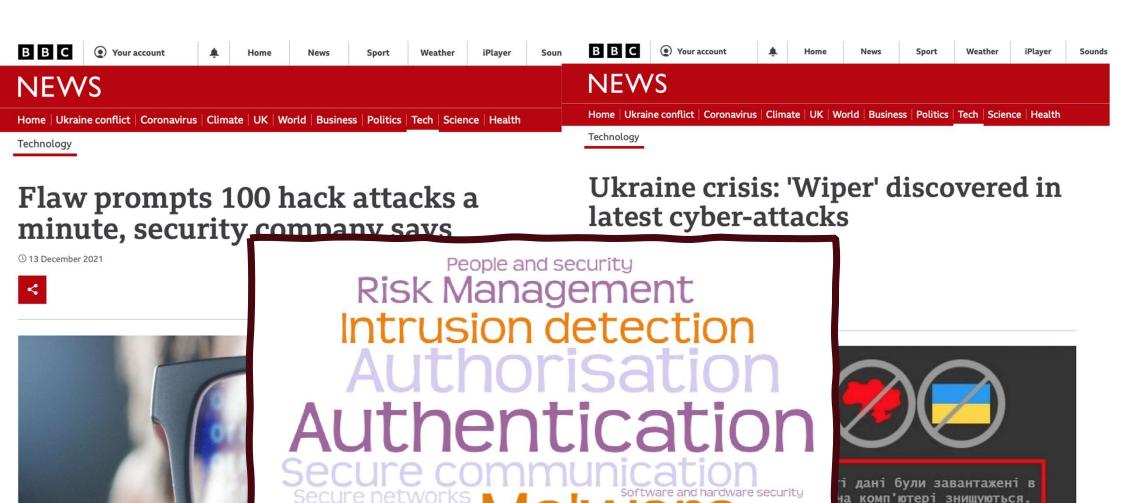


Russia-Ukraine war



Ukraine websites were hit by a cyber-attack in January too, which was blamed on Russia

Ukraine has been hit by more cyber-attacks, which its government says are "on a completely different level".



A flaw in widely used computer code is prompting 100 new hacking attempts every minute, a security company says.

**GETTY IMAGES** 

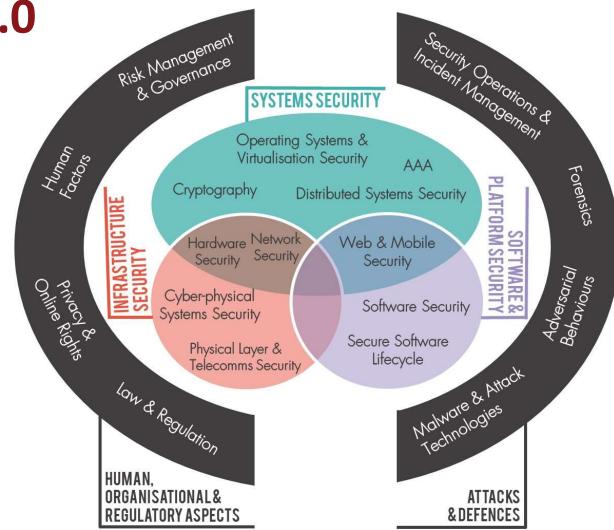
Ukraine websites were hit by a cyber-attack in January too, which was blamed on Russia

Украинец! Все ваши личные данные были загружены в

інформація про вас стала е гіршого. Це Вам за ваше нє. За Волинь, за ОУН УПА, і за історичні землі.

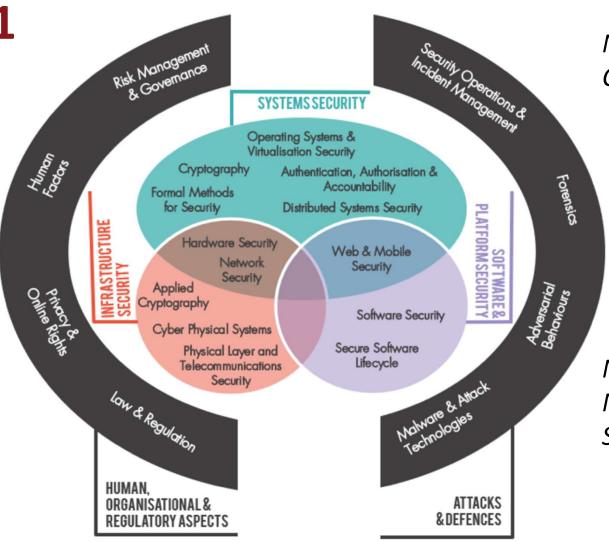
Ukraine has been hit by more cyber-attacks, which its government says are "on a completely different level".

**CyBOK 1.0** 



**CyBOK 1.1** 

Updates to Network
Security KA



New KA on Applied Cryptography

New KA on Formal Methods for Security

- >115 Experts: Authors, Reviewers, Advisors
- **>1000** Pages
- >2200 Authoritative sources
- >1600 Comments from wider community
- >30 Invited talks, panels and keynotes



## The Cyber Security Body of Knowledge

Version 1.1.0 31st July 2021 https://www.cybok.org/

#### **EDITORS**

Awais Rashid | University of Bristol Howard Chivers | University of York Emil Lupu | Imperial College London Andrew Martin | University of Oxford Steve Schneider | University of Surrey

#### **PROJECT MANAGERS**

Helen Jones | University of Bristol Yvonne Rigby | University of Bristol PRODUCTION

Chao Chen | University of Bristol

Joseph Hallett | University of Bristol





Mapping reference with > 13000 terms



An index for easy look up of terms



## cybok.org



	2021	2020
Total website hits	~4.9M	~3.84M
Monthly average hits	~408K	~349.5K
Daily average hits	~13.3K	~11.5K
Total downloads	>707K	>377K
Downloads of CyBOK 1.0	>390K	>291K
Downloads of CyBOK 1.1 (from 2 August 2021)	>20K	

## **CyBOK Use Cases**

Design new university or professional training programmes



Contrasting different programmes





Postgraduate Master's Degrees providing a general, broad foundation in cyber security Based on the Cyber Security Body of Knowledge (Cypery)

PDF - 797 KB - 54 PAGES



Design new

certification

schemes

Postgraduate Master's Degrees focusing on a specialised area of Cyber Security Based on the Cyber Security Body of Knowledge (CyBOK).

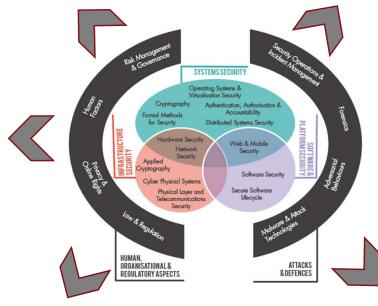
PDF - 849 KB - 56 PAGES



Bachelor's in Computer Science and Cyber Security

Two certifications; A) providing a general broad foundation and B) focusing on a specialised area of...

POF - 753 KB - 69 PAGE





Knowledge requirements for job roles



Traceably meeting certification requirements





# **CyBCK**

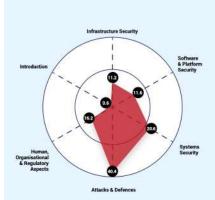
The Cyber Security Body of Knowledge

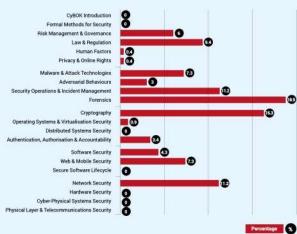
Mappings of University and Professional Training Programmes to CyBOK



#### **Edinburgh Napier University**

MSc Advanced Security and Digital Forensics

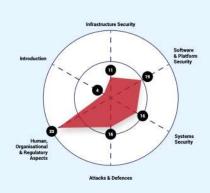


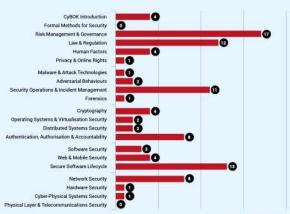


NCSC certified degrees

#### CISSP

Certified Information Systems Security Professional - (ISC)<sup>2</sup>



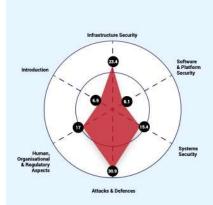


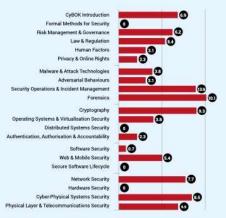
Professional certification programmes

#### Percentage %

#### **University of Plymouth**

**MSc Cyber Security** 

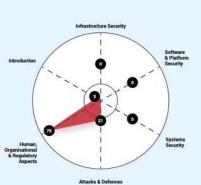


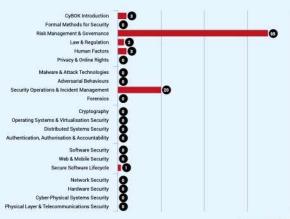


#### **CISM**

Percentage %

Certified Information Security Manager - ISACA





## Community projects to develop additional resources for CyBOK 1.0

Case Studies in support of CyBOK 1.0 Selected Topics	Nancy Mead, SEI Fellow Carnegie Mellon University (ret), USA
Development of redistributable laboratory materials for GSM	Denis Nicole University of Southampton, UK
Development of redistributable laboratory materials for wireless remote control	Denis Nicole University of Southampton, UK
Published PhD theses mapped to CyBOK 1.0	Virginia Franqueira University of Kent, UK
Open source CyBOK practical challenges and learning resources	Z. Cliffe Schreuders Leeds Beckett University, UK
Providing an online platform for hierarchical knowledge presentation, visualisation and mapping	Eckhard Pfluegel Kingston University, UK
Enhancing security architecture frameworks to accommodate the CyBOK KAs for practitioners	Duncan Greaves Coventry University, UK
Teaching CyBOK Cyber Physical Systems Security through interactive simulation	Jon Stadon University of the West of England, UK

## Community projects to develop additional resources for CyBOK 1.1

Added Case Studies for CyBOK 1.1 and Report on Classroom Usage	Nancy Mead, SEI Fellow Carnegie Mellon University (ret), USA
Develop pedagogical practices to support active and engaging practices in Forensics Education	Joseph Maguire University of Glasgow, UK
Developing redistributable practical materials for Formal Methods in Security	Martin Lester University of Reading, UK
Learning together - Cybersecurity for toddlers	Elizabeth Quaglia Royal Holloway University of London, UK
Mapping of cybersecurity games onto CyBOK	Joseph Hallett University of Bristol, UK
Phase 2 Open Source CyBOK Practical Challenges and Learning Resources	Z. Cliffe Schreuders Leeds Beckett University, UK
Secure Coding Game-based Lab	Manuel Maarek Heriot-Watt University, UK
Visualising CyBOK References	Gary Stevens Uncommon Relation Ltd, UK

## Plans post March 2022



Qualifications Framework
Careers Routes
Future Stewardship of CyBOK



**CyBOK Review Process** 



**Further Small Projects** 



Ways to capture *emerging* knowledge not yet as *established* as a KA



**Industry Champions** 



Operationalising knowledge that crosscuts multiple KAs

**Questions?** Risk Management & Governance **SYSTEMS SECURITY** Operating Systems & Virtualisation Security Fodos Cryptography Authentication, Authorisation & Forensics Accountability Formal Methods for Security Distributed Systems Security SOFTWARE & PLATFORM SECURITY INFRASTRUCTURE Security Hardware Security Web & Mobile Network Security Security Applied Cryptography Software Security Cyber Physical Systems Physical Layer and Telecommunications Secure Software Lifecycle Mohwate & Attack Technologies Security low & Regulation HUMAN, **ATTACKS** ORGANISATIONAL&

REGULATORY ASPECTS

&DEFENCES