CT255
Introduction to Cybersecurity

Module Information

Semester 1

Dr. Michael Schukat, 2019-22

About me

- Background:
  - M.Sc. Computer Science
  - PhD (Computer Science)
  - Since 2002: Senior Lecturer in the School of Computer Science
  - 1999 - 2002: Senior Embedded Systems Design Engineer (Ireland)
  - 1997 - 1999: Embedded Systems Design Engineer (Germany)
  - 1994 - 1997: Junior Lecturer and Researcher (Germany)
- Research Interests:
  - Many, including cybersecurity
- Contact:
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  - Office IT402

CT255 - Cybersecurity
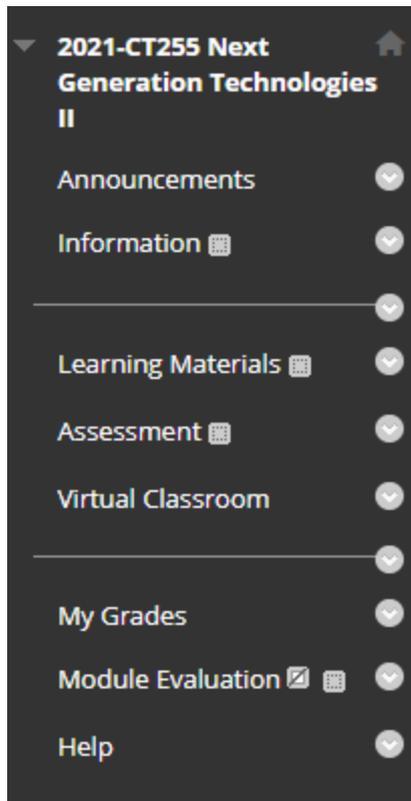Module Information
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Module Overview

◆ CT255 consists of 2 parts, each worth 50%

  ■ Semester 1: Cybersecurity (me)

  ■ Semester 2: Game Programming (Dr. Sam Redfern)

◆ 2 hours exam paper next April / May

  ■ Previous exam papers available from NUIG library database

    ● **Cybersecurity is a new S1 topic since 2020/21**

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Blackboard Learning Materials

2021-CT255 Next
Generation Technologies
II

Announcements

Information

Learning Materials

Assessment

Virtual Classroom

My Grades

Module Evaluation

Help

- Lecture code **2223-CT255**
  - If you encounter any problems, contact me via email
- Announcements
- Information
- Learning Materials
- Assessment
- Virtual Classroom
- Discussion Forum

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Lecture Organisation

♦ Where possible we'll apply the concept of **flipped learning**:

- You'll study a set of material prior to the weekly lectures, circulated via Blackboard

- If you have specific questions about content, please let me know by the **Friday before the lecture**, so that I can incorporate them into my lecture slot the following day (Monday)

- On occasions you'll complete a marked Blackboard quiz

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Weekly Classroom Activities

- **Please have a charged mobile device with you to access Blackboard or other learning tools, e.g.**
  - Qwickly to record attendance

- Lectures will incorporate further examples, case studies and other activities
  - Small group activities
  - Interactive discussions (using Menti)
  - Post-lecture reflective journal submissions

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Labs

- Labs starting in week 3 (Wed 14:00-16:00), **to be confirmed**
  - F2F labs in IT101
  - 2 groups, therefore 1 hour of lab time per student and week
  - Lab attendance is not compulsory, but recommended

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Breakdown of Marks

- See Blackboard *Information* section
  - Breakdown of CA may change slightly

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Part 2:

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What is Cybersecurity?

◆ Cybersecurity is the practice of protecting systems, networks, and programs from digital attacks. These cyberattacks are usually aimed at accessing, changing, or destroying sensitive information; extorting money from users; or interrupting normal business processes
Source: Cisco

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Some interesting Videos

Hacker Shows Off Lethal Attack By Controlling Wireless Medical Device

BY JORDAN ROBERTSON | FEB. 29, 2012 10:00 AM EDT | POSTED IN HACKERS, MEDICAL PRIVACY, POSTS, SECURITY, VIDEO | 15 COMMENTS

Recommend 366 Tweet 250 Share 89 +1 74 Email Print

Photographer: David Paul Morris/Bloomberg

Barnaby Jack uses a mannequin equipped with an insulin pump to show the vulnerabilities of wireless medical devices.

- https://www.youtube.com/watch?v=D2mxKEa2xmA
- https://www.youtube.com/watch?v=THpcAd2nWJ8
- https://www.youtube.com/watch?v=YJ8PZeRwweA

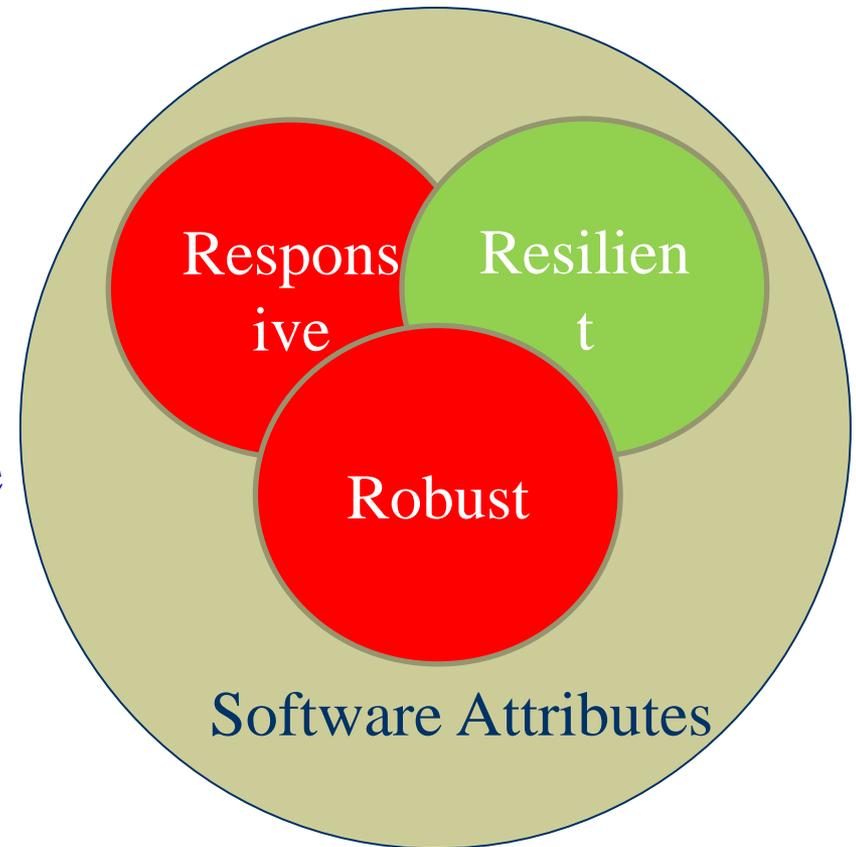**NUI Galway**
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S1 Main Learning Outcomes

- To provide you with a solid understanding and the practical application of:
  - GDPR
  - Social Engineering techniques
  - Cybersecurity principals and concepts, including
    - Private and public key encryption
    - Data authentication
    - Passwords and password cracking

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Cybersecurity Roadmap

- CT255 – Semester 1
  - Introduction to Cybersecurity
- CT417 – Year 4
  - Secure and resilient software
- CT420 – Year 4
  - Real-time systems, mission critical and robust software
- CT437 – Year 4
  - Advanced Cybersecurity

Responsive

Resilient

Robust

Software Attributes

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The next Steps

Week	Task 1	Task 2
Week 1	Introduction (now)	Study week 2 material (GDPR)
Week 2	GDPR case study and small groups activities	Study week 3 material

Please check my Blackboard posts!

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