Faculty of Electrical Engineering and Computer Science

# Master SCE – Cybersecurity (in English Language)

**Duration: 2 years**

Universitatea
Transilvania
din Brașov
FACULTATEA DE INGINERIE ELECTRICĂ
ȘI ȘTIINȚA CALCULATOARELOR

# About Cybersecurity master program

- The master program "CyberSecurity" is part of the fundamental domain of Engineering Sciences, the master studies in the domain of **Electronics, Telecommunications and Informational Technologies (ETTI).** The teaching language is English.
- The program is dedicated mainly for students graduating from a bachelor's degree program in the fields of Electronic Engineering, Telecommunications, Computers and Information Technology, Applied Automatics, Informatics, but can also be followed by graduates of related study programs or cybersecurity enthusiast.
- The training of cyber security specialists will be based on the presentation of cyber security concepts, information security methods and organizational vulnerabilities assessment and the acquisition of practical skills in determining the threats, risks and security breaches, implementation of robust security infrastructures with **software and hardware methodologies**, protection of critical infrastructures and the rapid and efficient management of cybersecurity incidents.

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# CyberSecurity – Curiculla

## Year I

### Semester 1

- Cryptography Fundamentals and Application Scenarios
- CyberSecurity of Information Systems and Services
- Identity and Access Management in the Virtual Space
- Types of Cyberattacks and Threats
- Academic ethics and integrity
- Practical placement

### Semester 2

- Management of Cyber Security Incidents
- Network Security and Perimeter Defence
- Security of Critical Infrastructures
- Industrial Control Systems Security
- Business Process Management
- Secure Programming and Application Security OR Secure Web and Internet Technologies
- Practical placement

## Year II

### Semester 3

- IT forensics
- Data mining and data warehousing
- Ethical hacking and security audit
- Information Assurance and Risk Management
- Malware analysis OR CyberSecurity of Mobile Devices
- Data Protection and Security Legislation OR Enterprise Architecure and Business Performance
- Practical placement

### Semester 4

- Practical for dissertation paper preparation
- Elaboration of dissertation paper
- Practical placement

# Professional Perspectives at Graduation and Popular Employers

- Security engineers are responsible for protecting organizations and systems against vulnerabilities, security incidents and persistent threats.
- Cybersecurity professionals are needed across **every sector and industry, starting from IT organizations and extending to other industries: financial services, health care, government, manufacturing and retail.**

Main cybersecurity specialist duties:

- Identification of cybersecurity risks and vulnerabilities at organizational level
- Design and implementation of data protection and defense solutions (SW and HW)
- Management and response to cybersecurity incidents

ARC Brașov, Atos, Autoliv Saving More Lives, Benchmark Electronics, CADTEC Automation, Celesta Comexim, Cerner, Elektrobit, FotoNation, intel, Miele, mondly, NTT DATA Global IT Innovator, preh, SIEMENS, STABILUS, TATA TECHNOLOGIES, TEHMIN Brașov, TOTAL Electric, Waters THE SCIENCE OF WHAT'S POSSIBLE., PSICONTROL for high-tech breakthroughs, EVIDEN

# Events and opportunities for students

- IESC and Companies
- AFCO (Graduates facing Companies)
- Student Communication Sessions
- Brasov CyberHub events

- Internships and scholarships in companies
  Visits to professional laboratories
  Contests / hackathons / CTFs
- UNITBV Scholarships

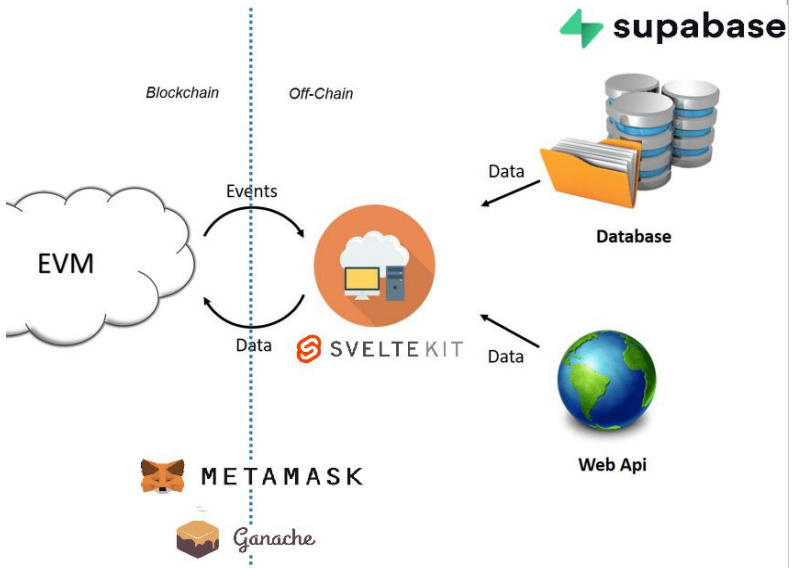
https://www.unitbv.ro/studenti/administrative/burse.html



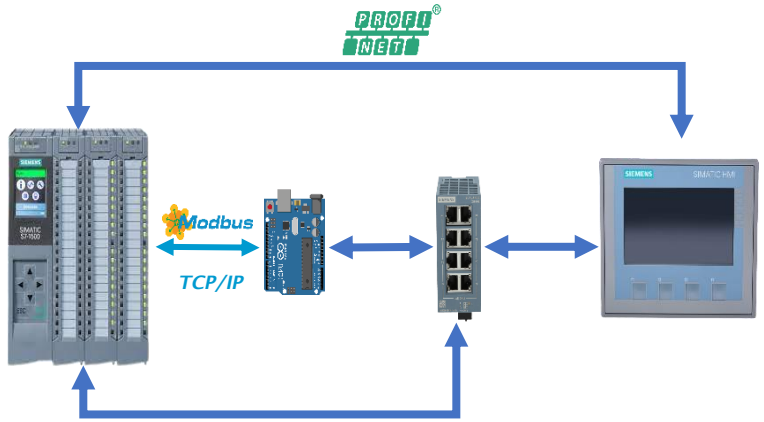
- Projects:
  - IDS/IPS detection and protection system for critical communication infrastructures with DDoS attack early warning and blocking capabilities
  - Fulbright grant for cyber lab development

# Examples of Graduation Projects

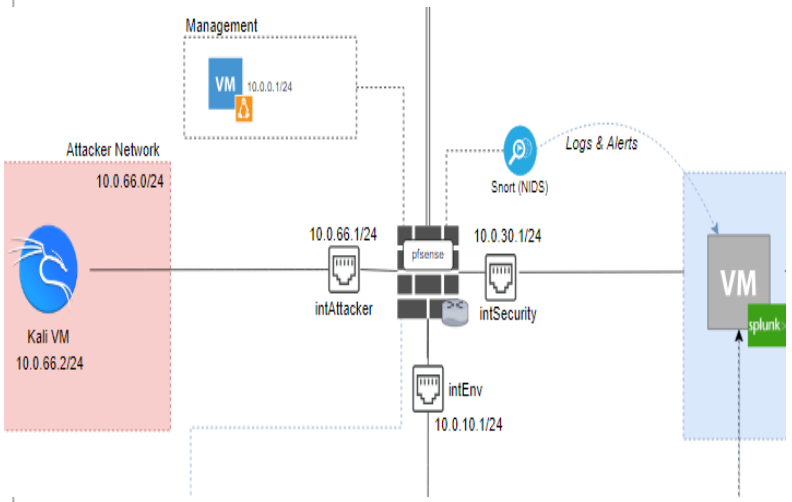
- AI based cybersecurity solutions: behavior analytics for drones
- Micro-services secure communication system
- Blockchain based voting system




- Next Generation Firewalls Scenarios And Orchestration
- Industrial Cybersecurity Solutions: pentesting of SCADA Industrial System




- DevSecOps implementation for AWS Cloud environment
- Open-source based Cloud Security Posture management
- Management of cybersecurity incidents with Splunk



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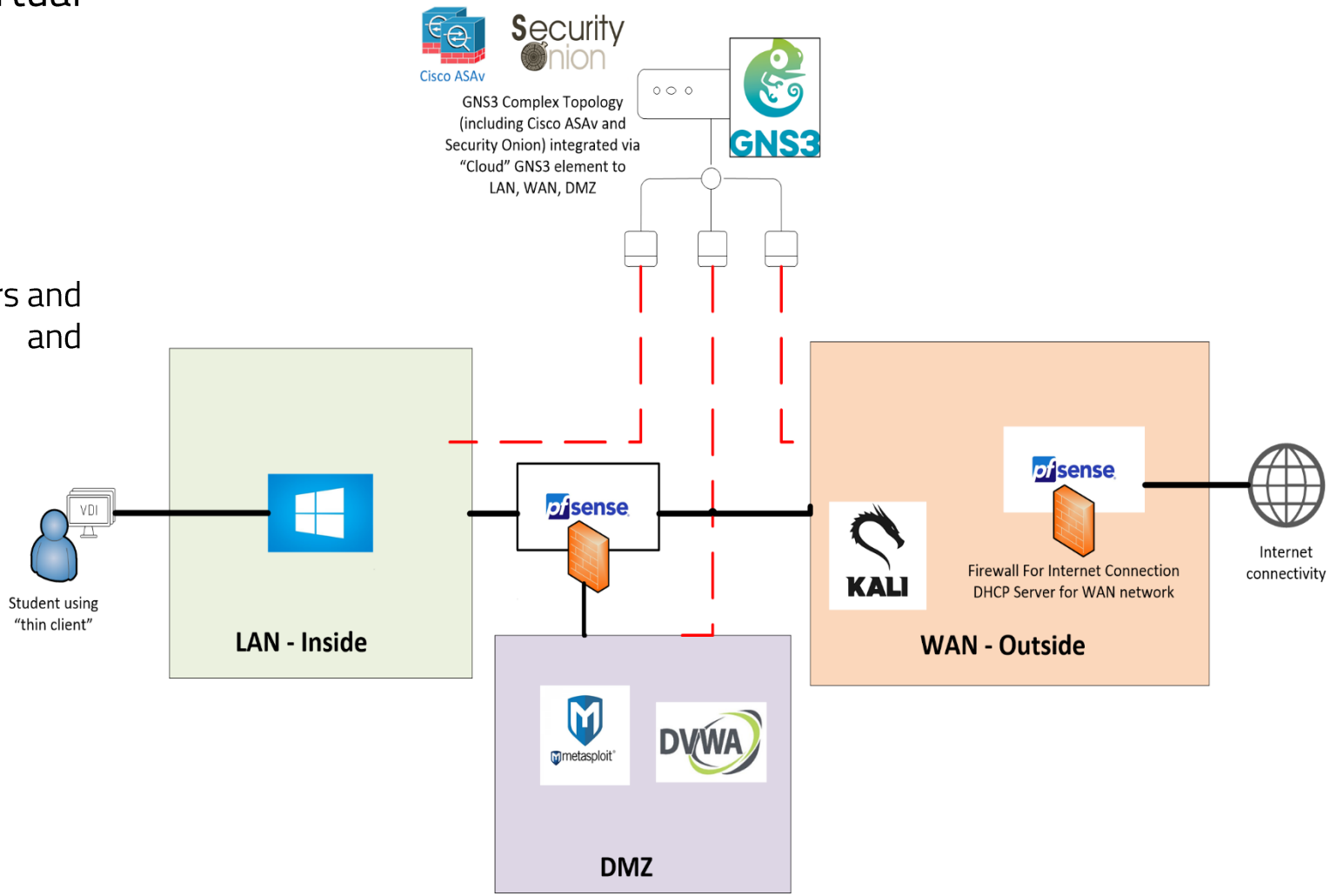
# Virtualised CyberSecurity Lab

- Flexible system for cybersecuirty solutions integration in experimental virtual environments

## Virtualised support and VDI Access

- Bull Sequana servers with GPU support
- XEN Server and VmWare vSphere as hypervisors and available via XEN Desktop for student and researchers.
- Evidian SSO solution + CardOS API
- Horus PKI
- HSM Trustway Proteccio



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# Internationalization and Erasmus

- Complex international experience – theoretical and practical studies
- 12 months for each educational cycle: bachelor's, master's, doctorate
- Erasmus programme "opens minds" and "changes lives
https://iesc.unitbv.ro/ro/studenti/erasmus.html


- In the new UNITA alliance, in which we are partners, our students will be able to choose personalized, multilingual and international study paths from a rich learning offer
https://www.unitbv.ro/afilieri-si-cooperari/unita-universitas-montium.html

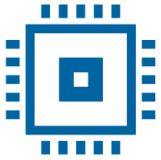
UNITA universitas montium

**661 international partnership agreements with 85 countries**

**Partners in Europe:**
- Albania - 9
- Austria - 11
- Belarus - 4
- Belgium - 5
- Bosnia and Herzegovina - 9
- Bulgaria -13
- Cyprus - 1
- Croatia - 10
- Czech Republic - 17
- Denmark - 3
- Finland - 6
- France - 40
- Germany - 36
- Greece – 16
- Hungary - 12
- Ireland - 3
- Italy - 36
- Latvia – 3
- Lithuania - 6
- Luxembourg - 1
- Malta - 1
- Moldova - 12
- Montenegro -2
- The Netherlands - 4
- North Macedonia - 7
- Norway - 2
- Poland - 45
- Portugal - 21
- Russia - 10
- Serbia - 12
- Slovakia - 11
- Slovenia - 7
- Spain - 37
- Turkey - 64
- Ukraine - 10
- United Kingdom - 2

# Contact

**f-iesc@unitbv.ro**



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