CyberMACS NEWSLETTER

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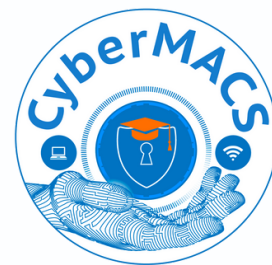
Dear Reader,

Welcome to the second edition of the CyberMACS newsletter!

In our second newsletter, CyberMACS reaffirms its commitment to addressing the growing demand for cybersecurity expertise. As a Joint Master's Degree Programme in "Applied Cybersecurity," we strive to equip students with the skills to excel in this evolving field. With a focus on academic excellence, industry collaboration, and international mobility, CyberMACS is shaping the future of cybersecurity professionals. The inclusion of our students marked a pivotal moment in our journey. Since the start of the new year, our students have engaged in a range of activities, including career sessions, seminars, internship database access, certification training sessions, and a winter school programme. Additionally, we've announced the second intake of students for the academic year 2024-2025 and celebrated collaborative milestones with double degree ceremonies.

As we reflect on the progress made since our first newsletter, it's evident that CyberMACS is not just an academic programme but a dynamic community dedicated to advancing cybersecurity knowledge. In response to the ever-changing landscape of cyber threats, CyberMACS continues to evolve its curriculum, integrating the latest industry trends and emerging technologies to ensure our graduates are well-prepared for the challenges ahead.

We're excited to announce upcoming guest lectures from renowned cybersecurity experts, providing our students with invaluable insights and networking opportunities within the field. Our commitment to fostering diversity and inclusion remains unwavering, with initiatives aimed at encouraging underrepresented groups to pursue careers in cybersecurity and creating a supportive environment for all our students. As part of our ongoing efforts to enhance the student experience, we're launching new mentorship programs and extracurricular activities, providing additional avenues for personal and professional development.
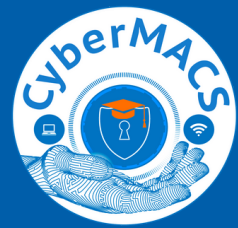
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CyberMACS: Erasmus Mundus Joint Master's Programme in Applied Cybersecurity

We extend our thanks to the students, faculty, industry partners, and stakeholders for their active involvement. For more detailed updates and news, please visit the CyberMACS website.

Here's to a quarter of year 2024 filled with exploration, education, and shared accomplishments!

Career Session: Introduction to European Cybersecurity Skills Framework (ECSF)

Ayhan Gucuyener, the Local Academic Coordinator of the CyberMACS Programme, introduced the European Cybersecurity Skills Framework (ECSF) developed by the European Union Agency for Cybersecurity (ENISA) to our students. This framework served as an invaluable resource for understanding different roles and skill sets within the cybersecurity field across Europe. By utilizing ECSF, we aimed to provide our students with comprehensive insights into the diverse career opportunities available in cybersecurity. At CyberMACS, our commitment lay in helping students explore and navigate the dynamic landscape of cybersecurity, enabling them to uncover a multitude of career paths tailored to their interests and abilities

CyberMACS Internship Database

At CyberMACS, we valued internships as crucial for grooming cybersecurity professionals. Our new initiative, the CyberMACS Internship Database, developed with Kadir Has University's Management Information System (MIS) Department, streamlined access to diverse cybersecurity internships. This collaboration underscored our commitment to fostering student growth and interdisciplinary teamwork. Through the Internship Database, students gained valuable hands-on experience, bridging the gap between academic learning and real-world cybersecurity practices. The team work with MIS department exemplifies our commitment to interdisciplinary collaboration.
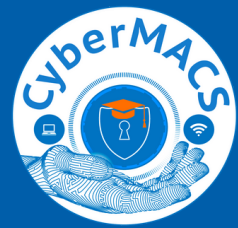
CyberMACS: Erasmus Mundus Joint Master's Programme in Applied Cybersecurity

Extra-curricular Activities: ICANN & CCIP - DNS Security Seminar

Our CyberMACS students received intensive training from ICANN and CCIP on DNS Ecosystem Security. Covering key topics such as governance models, domain names, and DNS security threats, the session equipped students with vital knowledge for navigating cybersecurity challenges. We were grateful to ICANN and CCIP for this collaboration in building a resilient cybersecurity community! This collaboration exemplified our commitment to providing our students with industry-relevant training and fostering partnerships with leading organizations in the cybersecurity field.

Certification Training and exam, sponsored by E&Y Germany

From February 5th to 9th, 2024, intensive program was expertly led by Dr. Knud Brandis and Andreas Kalender, both distinguished experts from Ernst & Young (EY) Germany. The training focused on Information Security Management Systems (ISMS) based on the ISO 27001/BSI IT-Grundschutz standards, equipping participants with a robust understanding of key cybersecurity principles.

Dr. Knud Brandis, a Partner at EY Germany, brought over 15 years of experience in cybersecurity, blending legal, technical, and strategic insights to enrich the training. Andreas Kalender, serving as the Director of Cyber Security at EY Germany, shared his extensive expertise in managing complex global cybersecurity challenges.

The intensive training as "BSI IT Baseline Protection Check Practitioner" aimed to prepare students for a range of certification exams, significantly enhancing their professional readiness and employability in the cybersecurity field. This initiative not only supports our students' academic growth but also aligns with our mission to contribute to the development of a skilled cybersecurity workforce, capable of addressing the evolving challenges in the digital world.
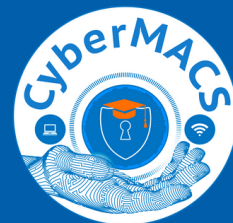
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CyberMACS: Erasmus Mundus Joint Master's Programme in Applied Cybersecurity

After a short break, we are back together again!

CyberMACS students were excited to come together for a special celebration as they returned from the first semester break! This gathering provided the ideal chance to reconnect with classmates, exchange stories, and prepare for the thrilling challenges that lie ahead.

## General Overview of Winter School 2024

The first Winter School of the CyberMACS Programme was held from **February 12 to 16, 2024**, at Kadir Has University in Istanbul. The event brought together CyberMACS students, partner universities, cybersecurity professionals, and academics for an immersive and comprehensive educational experience in cybersecurity. This year's focus theme was "**cybersecurity of critical infrastructures**," reflecting the increasing importance of protecting the backbones of a digital society.

The Winter School attracted **17 speakers from diverse sectors,** including academia, industry, and NGOs, with a strategic focus on aligning with partner universities and EU cybersecurity bodies like the European Cyber Security Organization (ECSO) and Women4Cyber.

26 different sessions were held during the Week on the following themes: Interactive Sessions, Soft-Skills Talks, Career Sessions, Hands-on Training, Field Trip, and Workshops.

During the week, **3 CyberMACS Governance Meetings** took place, which shows the Consortium's commitment to quality assurance, jointness, and smooth management of the Programme.

Session Distribution Based on the Themes

- Interactive Sessions
- Soft-Skills Talks
- Career-Sessions
- Hands-on Training
- Field Trip
- Workshop
- CyberMACS Governance Meeting
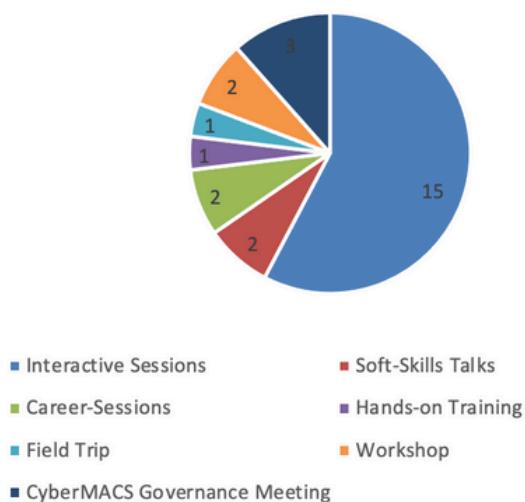
Distribution Based on The Sectors
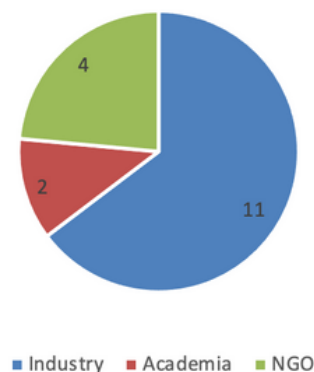
- Industry
- Academia
- NGO

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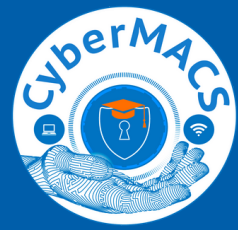
The Winter School (2024) Program

It has seven main pillars: Interactive lectures, expert-led workshops, field trip, soft skills sessions (career development, inclusiveness-diversity, and entrepreneurship) and hands-on training (Capture The Flag Competition-CTF) and networking opportunities.

Day I
1. Introduction to Winter School // Prof. Dr. Hasan Dağ (CyberMACS Programme Coordinator)
2. Interactive Lecture- Keynote Speech (online): Let's Promote Cyber Heros: Cybersecurity Skills Gap in Europe and Globe// Arnaud de Vibraye (European Cyber Security Organization- ESCO)
3. Interactive Lecture-Featured Session: Artificial Intelligence (AI)'s Role in Cybersecurity (online): Sebastian Cesario (BforeAI)
4. Interactive Lecture- Overview of Critical Infrastructures (CI) and Cyber Threats to CI // Bora Kose (Fortinet)
5. Interactive Lecture- European Programme on Critical Infrastructure Protection and Lessons Learned from Member States // Dr. Alessandro Lazari (University of Salento)
6. Soft Skills Talks- How to Become a Cybersecurity Entrepreneur // Dr. Knud Brandis (Ernst & Young, Germany)
7. Soft Skills Talks- Brainstorming on Theses Session (with Local Academic Coordinators)

Day II
8. Interactive Lecture-Artificial Intelligence Use Cases//Prof. Dr. Alexander Iliev (SRH-Berlin)
9. Interactive Lecture Overview of ICANN and DNS // Seher Sağıroğlu and Alperen Eken (ICANN)
10. Career Session I: Get Ready to Land a Job: Preparing your Job Interview//Burcu Şen (Haratres Technology)
11. Career Session II: How to Land a Job in Cybersecurity// Cihan Çelik (ADEO)
12. Interactive Lecture- Recent Trends in Cloud Security // Ozan Oğuz (Fortinet)
13. Opening Event

Day III
14. Workshop- Cyber Risk Assessment - Making it Work in Practice
15. Administrative Session/-Discussion with Virginie Lieberwirth (SRH-Berlin) and Igor Cvetanovski (UKIM)
16. Interactive Lecture-Ethical Hacking 101// Alper Başaran (Sparta Bilişim)
17. Interactive Lecture- Sophisticated Threats and Smarter Hackers: A CISO Perspective // Alen Bohçelyan (Coca-Cola Icecek)
18. Workshop- Student Achievement Analysis Workshop
19. CyberMACS Governance Meeting- Executive Board Meeting (III)

Day IV
20. Field Trip- Critical Infrastructures National Testbed Center (Kritik Altyapılar Ulusal Test Yatağı Merkezi) (Sakarya University)

Day V
21. Interactive Lecture- Cyber Vulnerabilities in Energy Sector and How To Keep Our Energy Infrastructures Secure? // Güray Oğuzgiray (Senkron Energy Services and EnerjiSA Üretim)
22. Interactive Lecture- Secure Coding and Application Security// Cüneyt Kalpakoğlu (EndPoints)
23. Soft Skills Talk: Diversity and Inclusiveness in Cybersecurity- Gender Perspective (online) //Anett Madi-Nator (Women4Cyber)
24. Hands-on Training: Let's Build Hands-on-Skills: Capture the Flag Competition Supervised by Ender Gezer and CCIP Team.
25. CyberMACS Governance Meeting: Quality Assurance Board Meeting (I)
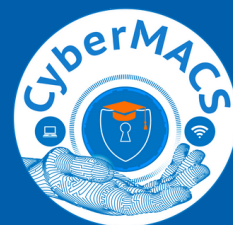26. CyberMACS Governance Meeting: Master Management Committee Meeting (II)

Interactive Lectures

Renowned academics and industry leaders delivered engaging lectures on emerging trends, best practices, and real-world case studies, providing valuable insights into the latest developments in cybersecurity. Lectures covered a wide range of topics. Dr. Alessandro Lazari (University of Salento) provided invaluable insights into the European perspective of Critical Infrastructure Protection, while Bora Kose (Fortinet) delivered an impressive presentation on real Operational Technologies (OT) cyber incidents. Güray Oğuzgiray's (Senkron Energy Digital Services) comprehensive session on energy infrastructures' cybersecurity and OT Security Operation Center was enlightening. Sebastian Cesario and Prof. Dr. Alexander Iliev explored Artificial Intelligence (AI) and cybersecurity and Ozan Oguz (Fortinet) delved into cloud security. Cüneyt Kalpakoğlu (Endpoints Lab) discussed secure coding practices, while Alper Başaran provided insights into ethical hacking. Alen Bohçelyan (CCI) shared his perspectives regarding working as a Chief Information Security Officer (CISO) for a global company, and ICANN (Internet Corporation for Assigned Names and Numbers) specialists Seher Sağıroğlu and Alperen Eken introduced CyberMACS students the structure of ICANN and DNS (the Domain Name System) infrastructure.
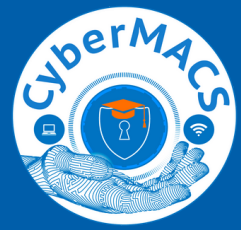
Expert-led Workshops

Attendees benefitted from an extensive hands-on workshop conducted by Bozidar Spirovski (Blue dot and @ Sourcico) on cybersecurity risk management and communication. In the Student Analysis Workshop, CyberMACS students found the opportunity to present their academic achievements, ongoing or published work in groups. This significantly increased CyberMACS students soft skills in terms of making good presentations and time management.
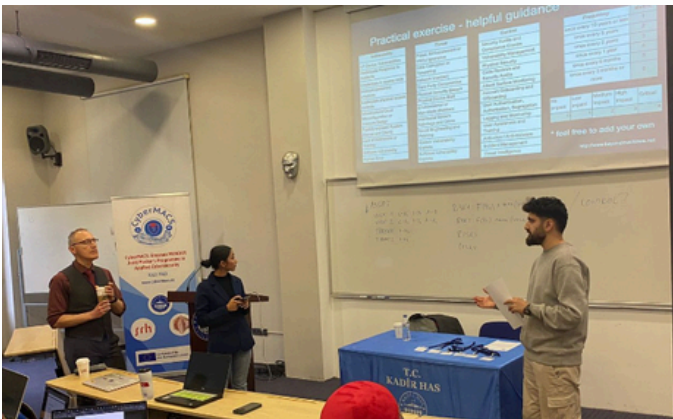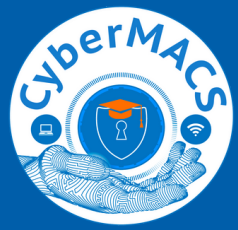
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Field Trip

The students went on a field trip to the Critical Infrastructures National Testbed Center of Sakarya University. During the field trip, students found an opportunity to participate in engaging demonstrations supervised by Prof. Dr. İbrahim Özçelik, Dr. Murat İskefiyeli, and Dr. Musa Balta.
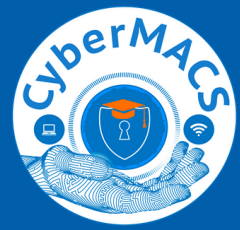
Soft Skills and Career Development

Career Development Resources and Emphasis on the Importance of Diversity: CyberMACS Winter School 2024 offered career development resources to help participants kickstart or advance their careers in cybersecurity, including sessions on entrepreneurship, diversity, soft skills, and preparation for job interviews. Arnaud de Vibraye (European Cyber Security Organization-ECSO) introduced ECSO's initiatives to bridge the cybersecurity workforce gap in the EU, and María Saskia Brugman (Women4Cyber Foundation) gave a lecture on the importance of promoting diversity and gender equality. Knud Brandis (Ernst & Young Germany) engaged in a lively discussion on entrepreneurship in cybersecurity. Burcu Şen (İyibiriz) organized an insightful session on job readiness, and Cihan Çelik (ADEO) shared his expertise on the essential skills needed for landing a job in cybersecurity.

To increase soft-skills, CyberMACS students were asked to be volunteers to take part in the organization of the event. As a result, each day were moderated by a student and three students took part in the organization and smooth management of the Capture the Flag competition.
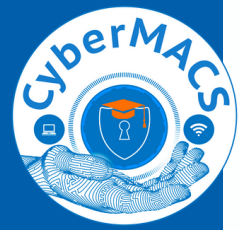
Practical and Hands-on Trainings

The Capture the Flag competition, supervised and sponsored by CyberForce, a prominent member of CyberMACS's Industrial Advisory Board, played a pivotal role in enhancing the Winter School experience. By participating in the CTF, CyberMACS students gained valuable insights into the complexities of cybersecurity threats and defense mechanisms, preparing them for the challenges they may encounter in their future careers. The support of CyberForce in organizing and sponsoring the CTF underscored the collaborative partnership between academia and industry within the CyberMACS programme, highlighting the importance of industry engagement in shaping cybersecurity education and training initiatives.

CTF Information
Competition Type: CTF
Location: On-site
CTF Type: Jeopardy
Date: 16.02.2024
Duration: 8 hours
Platform: CTFd
Questions: 8
Categories: Web Exploitation, Forensics, Cryptography, Reverse Engineering, Steganography, and Cyber Threat Intelligence

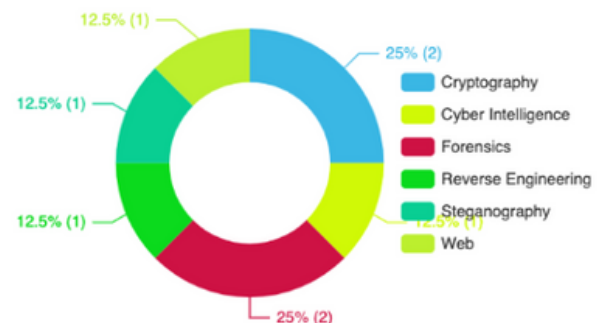### Top 3 Performers
1st Helmi Hibatullah
2nd Aldiyar İsmailov
3rd Isiaq İbrahim

The Winter School's success was further bolstered by the collaborative partnership with CyberForce's the Capture the Flag (CTF) competition. The top three performers were granted employment and internship opportunities.
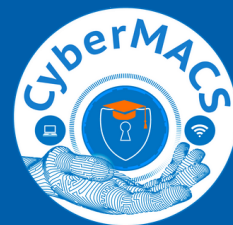

Category Breakdown

12.5% (1)
25% (2) — Cryptography
12.5% (1) — Cyber Intelligence
Forensics
12.5% (1) — Reverse Engineering
Steganography
12.5% (1)
Web
25% (2)

CyberMACS: Erasmus Mundus Joint Master's Programme in Applied Cybersecurity

CyberMACS Consortium

On February 13, 2024, the collaboration of three universities has set the direction and goals for our Master's programme in Applied Cybersecurity, CyberMACS, for the next five years.

CyberMACS Opening Event

From the networking aspect, CyberMACS Opening Event welcomed high-level guests and three rectors from three partner Universities, the Deans and the representatives from the North Macedonian Consulate in Istanbul attended to the event. High level participants' commitment and participation demonstrate the recognition of CyberMACS as a valuable platform for promoting innovation, excellence, and international collaboration in the field of cybersecurity, further enhancing its reputation and impact within the academic and diplomatic communities.

International Women's Day Celebration: Empowering Women Worldwide

We celebrated Women's International Day, CyberMACS proudly aimed to bridge the gender gap in the cybersecurity workforce, with less than 25% of the workforce currently being female. We collaborated with best practices and programmes like the EU's Women4Cyber initiative, focusing on integrating a gender perspective into the cybersecurity job market. CyberMACS strived for a balanced gender representation, empowering women, and fostering equal opportunities in technology. Together, we built a future where everyone, regardless of gender, thrived in the tech and cybersecurity industry.
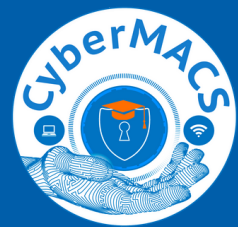
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Munich Study Visit: A Journey of Collaboration and Innovation

On March 11th and 12th, 2024, the CyberMACS Project Manager Ebru Dilan participated in a study visit in Munich, organized by the Erasmus Mundus Support Initiative. Hosted by the Technical University of Munich (TUM) and Ludwig-Maximilians-Universität München (LMU), the visit gathered experts from various Erasmus Mundus Joint Master's (EMJM) programmes to exchange best practices and tackle common challenges in managing these international programmes.

The two-day event was filled with engaging discussions, collaboration, and idea-sharing. Participants from diverse programs and backgrounds came together, each bringing unique perspectives to the table.

Key topics of discussion included student well-being, coordination between consortium partners, and selection procedures.
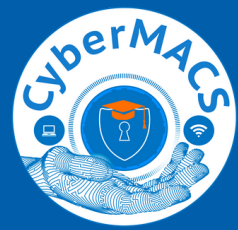
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Extra-Curricular Activities of CyberMACS: Exploring Career Opportunities with Barikat

In February 22, 2024, in the career session with Barikat, one of Turkey's leading cybersecurity companies, Bahadır Gökhan Sarıkoz shared invaluable tips on acing job interviews in cybersecurity, while Sinem Fakılar provided crucial HR perspectives on interview preparation and resume building. Students gained invaluable insights into the cybersecurity job landscape, essential skills, and the significance of inclusiveness and diversity in the workforce. A big thank you to Barikat for their valuable contributions!

Collaboration with other universities specialising in cybersecurity: CyberUS Summer School

Prof. Hasan Dag, CyberMACS Programme Coordinator, and Prof. Vesna Dimitrova, Local Academic Coordinator, have participated in this year's CyberUS Summer School, 15 to 19 April 2024 in Lorient, France. This event is designed to be a public platform that welcomes students, professionals, and academics to delve into complex cybersecurity topics not fully covered within the standard CYBERUS curriculum.

Publications

1. **Mahnoor Jamil**, Reiner Creutzburg, Mehmet Nafiz Aydın. Enhancing Critical Infrastructure Cybersecurity: Leveraging AI-Based Solutions for Threat Detection. Accepted in Springer Book Series "Algorithms for Intelligent Systems". 15th February, 2024.
2. **Jose Luis Cano Garcia, Izuchukwu Patrick Udechukwu, Isiaq Bolaji Ibrahim, Ikechukwu John Chukwu**, Hasan Dag, Vesna Dimitrova and Elissa Mollakuqe. 2024. Securing AI Systems: A Comprehensive Overview of Cryptographic Techniques for Enhanced Confidentiality and Integrity. 13th Mediterranean Conference on Embedded Computing. 23rd April, 2024.
3. **Mahnoor Jamil, Chukwu Ikechukwu John**, Reiner Creutzburg. Improving COVID-19 Detection: Leveraging Convolutional Neural Networks in Chest X-Ray Imaging. SPIE Conference. 23rd April, 2024.
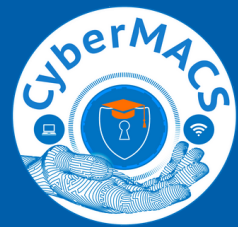
First Horizon Europe Cluster 3 Meeting

On April 30, 2024, the CyberMACS team participated in the Horizon Europe Cluster 3 meeting held in Istanbul, organized by the Istanbul Chamber of Industry. The focus was on Secure Societies, covering topics such as cyber security, border security, and disaster security. International companies briefly presented these thematic issues. During the pitch session, project requests and details were shared with participants. Kadir Has University R&D Directorate Office and CyberMACS team members, particularly Prof. Hasan Dağ, made new contacts related to cyber security. The Horizon Europe Work Programme 2023-2024 conference is aligned with several strategic goals. These include tackling crime and terrorism, managing EU borders, ensuring the resilience of infrastructures, and enhancing cybersecurity. The work programme emphasizes developing innovative solutions and collaborative approaches to address the dynamic challenges in securing society against diverse threats.

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