MSE | MASTER OF SCIENCE IN ENGINEERING

Zürcher Hochschule für Angewandte Wissenschaften
zh aw School of Engineering

Supplementary Course (EVA) at ZHAW School of Engineering

Title: Ethical Hacking

Short Code: rEVA_CTF

Credits	3
Profile	Computer Science (CS)
Responsible Institute /Centre	Institute of Applied Information Technology (InIT)
Responsible lecturer and contact informtion	Ariane Trammell ariane.trammell@zhaw.ch Thomas Sutter thomas.sutter1@zhaw.ch
Type and duration of examinations	Participation in at least 6 online Capture the Flag (CTF) Challenges during the semester. • Participation in one on-site CTF. • Submission of write-ups detailing the challenges solved and methodologies used. • Oral presentation of the solutions of one challenge in front of the other students.
Start date and duration	Semester: Spring and Autumn Detail: Start of semester
Location	Depeding on the chosen on-site CTF Final presentation in Winterthur
Course type	Regular meetings for knowledge transfer between the students • Individual participation in CTF Challenges (online and onsite in Switzerland. The train ticket must be paid by the student.)
Language of instruction	English
Short description (max. 300 characters)	This course offers you the opportunity to enhance your cybersecurity skills by participating in Capture the Flag (CTF) competitions as a solo player or with a team. CTFs are cybersecurity challenges designed to test and develop practical skills in areas such as cryptography, reverse engineering, web security, forensics, and binary exploitation.
Contents and Learning Objectives	Learning objectives: By completing this course, you will: • Develop hands-on expertise in cybersecurity techniques. • Gain experience in ethical hacking, vulnerability exploitation, and digital forensics. • Improve your problem-solving and teamwork skills in realworld cybersecurity scenarios. • Enhance your ability to analyze and secure software, hardware, networks, and web applications. Module Content: Participation in Capture the Flag Challenges to get a practical understanding of • cryptography,

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	• reverse engineering, • web security, • forensics, • binary exploitation.			
Prerequisites	The module is intended for students of the Information and Cybersecurity Profile and therefore basic cyber security and software development knowledge is required. Interested students from the computer science, data science or electrical engineering profile are also welcome.			
Literature	-			
Special requirements	-			
Offer for profiles	Aviation (Avi)	☐	Business Engineering (BE)	☐
	Computer Science (CS)	☒	Data Science (DS)	☐
	Electrical Engineering (ElE)	☐	Energy & Environment (EnEn)	☐
	Mechanical Engineering (ME)	☐	Mechatronics & Automation (MA	☐
	Medical Engineering (Med)	☐	Photonics (Pho)	☐
	Information and Cybersecurity (ICS)	☒	Civil Engineering (CE)	☐