



<b>Course title</b>	<b>Advanced Web Crawling and Cybersecurity (Master)</b>
<b>Institute/Division</b>	Faculty of Computer Science and Mathematics/ Department of Computer Science
<b>Course code</b>	F-1.WCSEC
<b>Erasmus subject code*</b>	11.3
<b>Number of contact hours**</b>	30 lecture hours (30h)
<b>Course duration</b>	1 semester (Fall)
<b>ECTS credits</b>	4
<b>Course description</b> (max 100 words)	This course covers advanced techniques in web crawling and cybersecurity. Students will explore web data extraction, crawling strategies, and ethical considerations, alongside countermeasures used to detect and prevent crawling activities. The course integrates machine learning-based anomaly detection and cybersecurity strategies to identify web-based threats. Topics include web scraper development, anti-bot mechanisms, distributed crawling, and ethical hacking principles. Students will work on projects that involve real-world applications of web intelligence and security analysis
<b>Literature</b>	Michael Schrenk, "Webbots, Spiders, and Screen Scrapers" - Christopher Hadnagy, "Social Engineering: The Art of Human Hacking" - Relevant research papers on web crawling, scraping detection, and cybersecurity
<b>Course type/organization</b>	<ul style="list-style-type: none"><li>• Lectures (15h),</li><li>• Computer labs (15h) / Project-based learning</li></ul>
<b>Assessment method</b>	Attendance at lectures, completion of lab exercises, and submission of a final project.
<b>Prerequisites</b>	Students should have experience with programming (Python/JavaScript preferred), basic knowledge of networking and web technologies, and familiarity with cybersecurity concepts.
<b>Primary target group</b>	Advanced computer science students (Master level or at least 3rd year Bachelor's students with strong programming skills).
<b>Contact person</b>	Mateusz Nawrocki (MSc Eng.)
<b>Remarks</b>	N/A

\*please insert one of the following codes:

11.0 Mathematics, Informatics

11.1 Mathematics

11.2 Statistics

11.3 Informatics, Computer Science

11.4 Artificial Intelligence

11.5 Actuarial Science

11.9 Others Mathematics, Informatics

\*\*1 lecture hour=45 minutes