Valid from 2024.HS

Module description: IT Security

Module Code	t.BA.IT.ITS.19HS
ECTS Credits	4
Language of Instruction/Examination	German
Organizational Unit	InIT
Module Coordinator	Ariane Trammell
Legal Framework	The module description is part of the legal basis in addition to the general academic regulations. It is binding. During the first week of the semester a written and communicated supplement can specify the module description in more detail.
Module Characteristic	Type 3a 2 lecture lessons per semester week and class+ 2 lab bi-weekly lessons per semester and half-class
Module Description	Contains the basics for the development and operation of secure systems: cryptography (secret and public-key, hash functions, signatures/MAC), secure protocols (EAP, TLS), authentication and authorisation.
Module Content	**This module provides an introduction to cybersecurity. In particular, the following topics are covered:** • - Introduction to cryptography (secret and public key cryptography, hash functions, signatures, message authentication codes) • - Certificates and public key infrastructure • - Secure protocols (TLS, Quic, WPA2, etc.) • - Mechanisms for securing networks (network access control, firewall, VPN, etc.) • - Methods for user authentication • - Authorization concepts in Unix and Windows • - Legal framework conditions with regard to cybersecurity in Switzerland
Prerequisite Knowledge	https://gpmpublic.zhaw.ch/GPMDocProdDPublic/2_Studium/2_02_Grundlagen_Studium/T_CL_Modulauspraegungen_SM2025.pdf

Learning Objectives (Competences)

Students...	Competencies	Taxonomies
Students are familiar with various techniques for protecting networks and know their characteristics and limitations.	M, F	K2, K3
Students know and understand the authorization mechanisms available in Unix and Windows.	M, F	K2, K3
Students know the basics of cryptography and can apply them securely.	F, M	K2, K3
Students know secure protocols and can use them correctly in their own projects.	F, M	K2, K3, K4
Students are familiar with the legal framework in the area of IT security in Switzerland and can find specific requirements in the laws.	F, M	K2, K3
Students are familiar with various authentication mechanisms (passwords, certificates, tokens, etc.) and can weigh up and use them correctly.	M, F	K2, K3, K4

Module description: IT Security

Performance Assessment

End-of-module exam	Assessment	Length (min.)	Weighting	Form
written exam	Grade	90	80	acc. to module agreement

Performance assessment during the semester	Assessment	Length (min.)	Weighting	Form
Labs *Points can be collected in the labs, which count towards the end-of-semester exam. For this purpose, the labs must be completed and shown to the supervisor.*	Grade	0	20	acc. to module agreement

Classroom Attendance Requirement	None
Learning material	• Stallings, W. Computer Security (nicht verpflichtend). Pearson. ISBN 978-0134794105.
Comments	