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Module EIT-FUN-413-M-7

Information Security Assessment and Operations (M, 8.0 LP)

Module Identification

Module Number	Module Name	CP (Effort)
EIT-FUN-413-M-7	<i>Information Security Assessment and Operations</i>	8.0 CP (240 h)

Basedata

CP, Effort	8.0 CP = 240 h
Position of the semester	1 Sem. in SuSe
Level	[7] Master (Advanced)
Language	[EN] English
Module Manager	Schotten, Hans D., Prof. Dr.-Ing. (PROF DEPT: EIT) (/staff/347/)
Lecturers	Duque Antón, Simon, Dipl.-Ing. (EXT DEPT: EIT) (/staff/605/) Schotten, Hans D., Prof. Dr.-Ing. (PROF DEPT: EIT) (/staff/347/)
Area of study	[EIT-FUN] Wireless Communication and Navigation
Reference course of study	[EIT-88.781-SG#2010] M.Sc. Electrical and Computer Engineering [2010] (/mhb/FB-EIT/cos-556/)
Lifecycle-State	[NORM] Active

Courses

Type/SWS	Course Number	Choice in Module-Part	SL	PL	CP	Sem.
6K+V+L	EIT-FUN-413-K-7 (/mhb/courses/EIT-FUN-413-K-7/)	P	L-Schein	PL1	8.0	SuSe

- About [EIT-FUN-413-K-7]: Title: "Information Security Assessment and Operations"; Presence-Time: 45 h; Self-Study: 195 h
- About [EIT-FUN-413-K-7]: The study achievement [L-Schein] **proof of successful participation in the practical course / lab** must be obtained. It is a prerequisite for the examination for PL1.

Examination achievement PL1

- Form of examination: **examination in form of partial achievements**
- Examination Frequency: each semester

written exam 60 min (33%) + lab exam 120 min (67%)

Evaluation of grades

The grade of the module examination is also the module grade.

Contents

From [EIT-FUN-413-K-7] **Information Security Assessment and Operations** (/mhb/courses/EIT-FUN-413-K-7/):

- Introduction to information security (10 %)
- Security assessment (40 %)
 - Introduction to security assessment
 - Reconnaissance
 - Scanning
 - Exploitation
 - Post-exploitation
- Security operations (30 %)
 - Intrusion prevention and detection
 - Incident response
 - Standards, regulations and security policies
- Emerging topics (1-3 current topics per semester, 20 %)
 - E.g. Industrial security, cloud security, mobile/IoT security and WiFi auditing

Competencies / intended learning achievements

- Memorize and define common IT (Information Technology) security taxonomies for threat intelligence, vulnerability assessment and security operations.
- Describe the standard methodologies for the phases reconnaissance, scanning, exploitation and post-exploitation of a security assessment.
- Describe the standard methodologies for authentication, intrusion detection, intrusion prevention, incident response and physical security in the context of security operations.
- Develop and justify information security policies with knowledge of regulatory compliance and industry standards.
- Identify security problems in emerging topics of the IT and OT (Operational Technology) fields.
- Choose and use common scanning tools to discover potentially vulnerable services on a given target host.
- Compose and apply vulnerability exploitation techniques and gain privileged access to show a host is vulnerable.
- Analyze and reconstruct information in storage media and log files using common forensic tools
- Summarize significant findings and write about necessary technical details to reproduce these findings

Requirements for attendance (informal)

Modules:

- [EIT-NAT-301-M-4] Introduction to Communication Networks (M, 4.0 LP) (/mhb/modules/EIT-NAT-301-M-4/)
- [INF-02-13-M-2] Communication Systems (M, 4.0 LP) (/mhb/modules/INF-02-13-M-2/)
- [INF-42-52-M-5] Network Security (M, 4.0 LP) (/mhb/modules/INF-42-52-M-5/)
- [INF-42-55-M-6] Protocols and Algorithms for Network Security (M, 4.0 LP) (/mhb/modules/INF-42-55-M-6/)

Requirements for attendance (formal)

None

References to Module / Module Number [EIT-FUN-413-M-7]

Course of Study	Section	Choice/Obligation
[EIT-88.781-SG#2010] M.Sc. Electrical and Computer Engineering [2010] (/mhb/FB-EIT/cos-556/)	Elective Subjects	[W] Elective Module
[EIT-88.A44-SG#2018] M.Sc. Media and Communication Technology [2018] (/mhb/FB-EIT/cos-568/)	Technical Elective Subjects	[W] Elective Module
[EIT-88.?-SG#2021] M.Sc. Electrical and Computer Engineering [2021] (/mhb/FB-EIT/cos-686/)	Technical Elective Modules	[W] Elective Module
[EIT-88.?-SG#2021] M.Sc. Media and Communication Technology [2021] (/mhb/FB-EIT/cos-688/)	Technical Elective Modules	[W] Elective Module
[EIT-88.?-SG#2021] M.Sc. Automation and Control (A&C) [2021] (/mhb/FB-EIT/cos-676/)	Elective Modules	[W] Elective Module