

# Training course 1 - Internet Technologies

## 1. Introduction

The training course is based on the blended-learning method and can be attended accompanying the job. The learning-content level is at 6 (Bachelor), measured on DQR. After having successfully passed the exam you will receive an academic certification with identification of 5 ECTS-CP (Credit Points).

Workload: 5 ECTS-CP: 1 ECTS-CP is equivalent to 30 h of learning

Our blended learning concept is based on these elements:

### 1. Reading guide structured in five chapters and approximately 200 pages

Each chapter, depending on the topic, contains:

- Content to systematically build up professional skills
- Examples to illustrate the content
- Questions with solutions to control ones understanding
- Source code snippets, excursions, references
- Exercises mandatory to accomplish by the participant

Deliveries are checked by teaching staff and an individual feedback is given to each participant

### 2. Pre-running online lectures

There are two online lectures. Each lasting one hour to introduce the participant to a new topic.

### 3. Meeting in personal presence event

The participant, the lecturer as well as the technical staff come together to:

- Better get to know each other
- Be introduced to more advanced or difficult parts of study contents
- Practice certain methods
- Work in groups on solving problems/exercises
- Defining, present and discuss solutions to the problems/exercises

### 4. Post-running online lectures

On a weekly basis there are about six online lectures, each lasting one hour, dedicated to:

- Work on advanced aspects of the topic
- Discuss questions and approaches to solutions
- Prepare for exams

5. Teachers forum

In parallel to the ongoing course participants, can submit questions and suggestions, which will be answered by the lecturer and the staff on the learning platform.

6. Participants forum

In parallel to the ongoing course, participants can discuss among themselves to exchange knowledge and opinions on the learning platform.

7. Exams (see below)

What awaits you?

After successful registration for the training course, you will receive your personal access data for the online learning platform ILIAS.

The learning platform ILIAS especially acts as a reliable and always accessible platform that documents and structures teaching and learning materials and provides various functions for synchronous (chat) and asynchronous (forums) communication.

As a virtual classroom tool Adobe Connect will be used to deliver web meetings and trainings. All online trainings will be recorded and published on ILIAS. All virtual classroom sessions will be held in the afternoon.

The training courses are supervised by a professor and a tutor.

For successfully passing the training course, you need to pass an exam. The exam consists of three separately granted parts:

1. Exercises out of the course book
2. Academic work on a forensic topic (in written form)
3. Presentation (15 minutes) of and questions (5-10 minutes) on the academic work (pls. see above – online)

Each of the three parts of the exam has to be passed.



## 2. Module description

<b>Internet Technologies</b>	
Certificate	University Certificate
Responsible Person	Name Prof. Dr. Martin Rieger
Lecturer	Name Prof. Dr. Martin Rieger
Credits	5 ECTS-credits
Target group	(In particular) Police Officers without IT study, but basic IT knowledge
Min.-max. participants	Between 12 to 30
Necessary qualifications	Basic IT-knowledge on Internet Technologies Computer basics and basic internet knowledge
Recommended qualifications	Good IT-knowledge on Internet Technologies Basic knowledge in digital forensics
Language	English
Workload	How much time is intended studying the whole module?  <b>Attendance and distance learning: 150 hours</b> 30 h = 1 CP according to ECTS
Learning content and level	<p>Basics in IT Security: Terms, concepts; security engineering; penetration test</p> <p>Network technology: Topologies and transmission media, overview of TCP/IP network layers (ethernet, WLAN, IPv4, IPv6); routing (DNS, ports, VPN, proxy, firewall); infrastructure (networks, service providers, components, devices)</p> <p>The internet: Origin and overview, organization and administration, developments. Cloud computing, internet of things, big data, mobile computing</p> <p>Internet service provider: Exchange services (FTP, Peer-to-Peer), access services (Telnet, SSH), e-mail (structure, clients, SMTP, POP, signatures, encryption, security), communications services (chat, internet telephony, skype,), social media (mechanisms, evidences on computer/mobile device/cloud)</p> <p>World Wide Web: Technology for communication (HTTP, cookie, encryption); technology for operation of a website (HTML5, CSS, JavaScript)</p>



	<p>Web Applications Security: Safety gaps, attacks, current incidents, analytical methods, demo platform</p> <hr/> <p><b>The learning-content level is at 6 (Bachelor), measured on DQR</b></p>
Learning goals	<p>Students know basic concepts of IT security. They know the basic flows to ensure IT security.</p> <p>Students know the fundamental structure and various information transport routes in the www.</p> <p>They can name relevant hard- and software tools needed for the operation of the internet and evaluate their importance for IT security.</p> <p>Students explain characteristics of common internet service providers. Furthermore, the module teaches students how to create web applications. They can classify corresponding safety criteria.</p> <p>They can evaluate and actively use technologies and tools for safety analysis.</p> <p>Furthermore, the module teaches students in self-competence, especially by having supervised self-instructions and practical exercises (problem-solving within a determined timeframe, asking for help if needed, learning by error corrections).</p>
Lectures and teaching method	<p>Attendance: Lectures and exercises</p> <p>Online courses: Lectures, focus on individual topics, web-based dialogue, exercises</p>
Media forms	<p>Digital and printed study packages, exams and corrections electronically submitted, material available on web-based learning platform, online-lectures are held via web-conferences and presentations via beamer.</p>
Literature	<p>Further literature will be made available within lectures.</p>



### 3. Timetable

The personal presence event of the training course Internet Technologies will taking place in **two rounds**. You can choose between the **first round (30<sup>th</sup> -31<sup>st</sup> August 2017)** and the **second round (31<sup>st</sup> August -1<sup>st</sup> of September 2017)**.

- Registration in order to attend the course: until 16<sup>th</sup> July 2017. Please send the completed registration form to [senterproject@hs-albsig.de](mailto:senterproject@hs-albsig.de).
- Submitting of the training documents and additional information: 23<sup>th</sup> July – 06<sup>th</sup> August 2017
- Self-study phase: 07<sup>th</sup> – 30<sup>th</sup> August 2017

#### ONLINE MEETINGS

Date	Activity
Monday, 14 <sup>th</sup> August 2017 13:00 – 14:00 CET	Wake-up call
Thursday, 17 <sup>th</sup> August 2017 13:00 – 14:00 CET	Introduction and presentation of the topics for the academic work

#### PERSONAL PRESENCE EVENT IN GERMANY

(Baden-Wuerttemberg State Police College, Böblingen)

#### Firsts round:

Wednesday, 30 <sup>th</sup> August 2017	Activity
08:30	Welcome and presentation of participants
09:30	Lecture reading guide 1: Network Technology
10:30	Coffee break
10:45	Lecture reading guide 2: The Internet
11:15	Lecture reading guide 3: Internet services
12:00	Lunch
13:00	Continuation: lecture reading guide 3
13:45	Lecture reading guide 4: World Wide Web
14:45	Coffee break
15:00	Tutorial and exercises: HTML5, Java Script
17:15	End of session

  

Thursday, 31 <sup>st</sup> August 2017	Activity
08:00	Exercises: Reading guide 4
09:30	Lecture reading guide 5: Web Applications Security
10:15	Coffee break
10:00	Continuation: lecture reading guide 5
11:00	Information regarding the further course of the training, exams, individual topic assignment for academic work and feedback session.
12:00	End of the first round



# OR

## Second round:

<b>Thursday, 31<sup>st</sup> August 2017</b>	<b>Activity</b>
13:00	Welcome and presentation of participants
14:00	Lecture reading guide 1: Network Technology
15:00	Coffee break
15:15	Lecture reading guide 2: The Internet
15:45	Lecture reading guide 3: Internet services
17:15	End of session

  

<b>Friday, 1<sup>st</sup> September 2017</b>	<b>Activity</b>
08:30	Lecture reading guide 4: World Wide Web
09:30	Tutorial and exercises: HTML5, Java Script
10:30	Coffee break
10:45	Continuation: Tutorial and exercises: HTML5, Java Script
12:00	Lunch
13:00	Exercises: Reading guide 4
14:30	Lecture reading guide 5: Web Applications Security
15:30	Coffee break
15:45	Continuation: Lecture reading guide 5
16:30	Information regarding the further course of the training, exams, individual topic assignment for academic work and feedback session
17:30	End of second round

- Announcement of the individual topic for academic work: 4<sup>th</sup> – 7<sup>th</sup> September 2017
- Self-study phase: 2<sup>nd</sup> September 2017 – final exam

## **ONLINE MEETINGS AND EXAMS:**

<b>Date and time</b>	<b>Activity</b>
Friday, 8 <sup>th</sup> September 2017 13:00 – 14:00 CET	Online meeting: Reading guide 1: Network Technology
Friday, 15 <sup>th</sup> September 2017 13:00 – 14:00 CET	Online meeting: Reading guide 2: The Internet
Sunday, 17 <sup>th</sup> September 2017	Submitting of solutions: Exercises out of reading guide 1 (obligatory)
Friday, 22 <sup>nd</sup> September 2017 13:00 – 14:00 CET	Online meeting: Reading guide 3: Internet services
Sunday, 24 <sup>th</sup> September 2017	Submitting of solutions: Exercises out of reading guide 2 (obligatory)
Friday, 29 <sup>nd</sup> September 2017 13:00 – 14:00 CET	Online meeting: Reading guide 4: World Wide Web



<b>Date and time</b>	<b>Activity</b>
Sunday, 1 <sup>st</sup> October 2017	Submitting of solutions: Exercises out of reading guide 3 (obligatory)
Friday, 6 <sup>th</sup> October 2017 13:00 – 14:00 CET	Online meeting: Reading guide 5: Web Applications Security
Sunday, 8 <sup>st</sup> October 2017	Submitting of solutions: Exercises out of reading guide 4 (obligatory)
Friday, 13 <sup>th</sup> October 2017 13:00 – 14:00 CET	Online meeting in preparation for the oral exam
Sunday, 15 <sup>th</sup> October 2017	Submitting of solutions: Exercises out of reading guide 5 (obligatory)
16 <sup>th</sup> – 22 <sup>nd</sup> October 2017	Submitting of the academic work (obligatory)
30 <sup>th</sup> October – 10 <sup>th</sup> November 2017	Individual exam: Presentation of and question on the academic work (online, obligatory)

Until 26<sup>th</sup> October 2017: Submitting of the academic certification



#### 4. Organizational issues

Address for the personal presence event	<p>Hochschule der Polizei Baden-Württemberg          Institut für Fortbildung          Wolfgang-Brumme-Allee 52          71034 Böblingen</p> <p>Phone: (+49) 7031/621 3333  <a href="http://www.hfpol-bw.de/index.php/boeblingen">http://www.hfpol-bw.de/index.php/boeblingen</a></p>
Organizer	<p>Albstadt-Sigmaringen University, Germany  <a href="http://www.hs-albsig.de">www.hs-albsig.de</a></p> <p>within the SENTER project  <a href="https://cyber-security-lab.de/it-sicherheit_forschungsprojekte/senter_strengthening-european-network-centres-of-excellence-in-cybercrime/">https://cyber-security-lab.de/it-sicherheit_forschungsprojekte/senter_strengthening-european-network-centres-of-excellence-in-cybercrime/</a></p>
Registration	<p>Please send the completed registration form until 16<sup>th</sup> July 2017 to <a href="mailto:senterproject@hs-albsig.de">senterproject@hs-albsig.de</a>.</p>
Costs?	<p>The participation and the meals in the dining-hall of the Baden-Wuerttemberg State Police College are free of charge (pls. see 'Meals'). The lodging at the Baden-Wuerttemberg State Police College has to be paid by the participant (more information: pls. see 'Lodging').</p>
Lodging	<p>Room prices at the Baden-Wuerttemberg State Police College:          Type 1: 'Simple' single rooms for 12 €/per night (with shower on the floor)          Type 2: 'Simple' single rooms for 17,60 €/per night (with own shower)</p> <p>Keys are handed out at the Service Center during the service hours or at the gate when the Service Center is closed (more information: pls. see 'Gate').</p> <p>It is possible to arrive during the evening before and leave the day after the training.</p> <p>Payment: <u>Only</u> cash payment during the service hours at the Service Center (Opening hours: pls. see 'Service Center').</p>
Meals	<p>Meals in the dining-hall of the Baden-Wuerttemberg State Police College will be paid by the organizer.</p> <p>Participants of the first round:</p> <ul style="list-style-type: none"> <li>▪ Dinner on Tuesday, 29<sup>th</sup> August 2017 (when arriving the night before)</li> <li>▪ Breakfast, lunch and dinner on Wednesday, 30<sup>th</sup> August 2017</li> <li>▪ Breakfast, lunch and (when leaving the day after) dinner on Thursday, 31<sup>st</sup> August 2017</li> <li>▪ Breakfast on Friday, 1<sup>st</sup> September 2017 (when leaving this morning)</li> </ul> <p>Participants of the second round:</p> <ul style="list-style-type: none"> <li>▪ Dinner on Tuesday, 29<sup>th</sup> August 2017 (when arriving the night before)</li> <li>▪ Breakfast, lunch and dinner on Wednesday, 30<sup>th</sup> August 2017</li> <li>▪ Breakfast, lunch on Friday, 1<sup>st</sup> September 2017.</li> </ul>





	<p>The <u>dining-hall</u> is opened for:</p> <p><i>Breakfast (buffet)</i>  Wednesday – Friday: 6:45 – 8:30  <i>Lunch (soup, salad, main course (vegetarian option avail.), dessert)</i>  Wednesday – Friday: 11:45 – 13:60  <i>Dinner (buffet)</i>  Wednesday – Thursday: 17:00 – 18:00</p> <p><u>Cafeteria “Eulentreff”</u>  Wednesday – Thursday: 07:00 – 15:00 and 18:00 – 23:00  Friday: 07:00 – 13:00</p> <p>There are various restaurants next to the police college.</p>
<p>How to get there</p>	<p>When arriving by <b>PLAIN</b> at the Stuttgart Airport take:</p> <p><b>S</b> S-Bahn S2 – direction Schorndorf  Get off at the train stop "Rohr"  <i>then</i></p> <p><b>S</b> S-Bahn S1 - direction Herrenberg  Get off at the train stop "Böblingen"  <i>then</i></p> <p>8 minutes of walking to the police college</p> <p>Travel time: Approx. 30 minutes, including 8 minutes of walking  Ticket: 2,90€  Internet: <a href="http://www.bahn.de">www.bahn.de</a> or <a href="http://www.vvs.de">www.vvs.de</a></p> <p><b>or</b></p> <p>Taxi to the police college. Taxis are available in front of the terminal.  Costs: Approx. 45€.</p> <p>When arriving by <b>TRAIN</b> at the central station in Stuttgart take:</p> <p><b>S</b> S-Bahn S1 - direction Herrenberg  Get off at the train stop "Böblingen"</p> <p><b>or</b></p> <p><b>R</b> R-Bahn R7 - direction Freudenstadt/Rottweil  Get off at the train stop "Böblingen"  <i>Then</i></p> <p>8 minutes of walking to the police college</p> <p>Travel time: Approx. 25 minutes, including 8 minutes of walking  Ticket: 5,60€  Internet: <a href="http://www.bahn.de">www.bahn.de</a> or <a href="http://www.vvs.de">www.vvs.de</a></p> <p><b>or</b></p> <p>Taxi to the police college. Taxis are available in front of the central station. Costs: Approx. 48€.</p> <p>When arriving by <b>CAR</b>:</p> <p>Hochschule der Polizei Baden-Württemberg  Institut für Fortbildung  Wolfgang-Brumme-Allee 52  71034 Böblingen</p> <p>Guests arriving by car can park cars on the site of the police college for free via the gate (more information: pls. see ‘Gate’)</p>



Service Center	<p>Opening hours:</p> <p>Monday – Thursday: 07:00 – 16:30</p> <p>Friday: 07:00 – 15:00</p>
Gate	<p>The gate is opened from</p> <p>Monday – Friday: 06:00-22:00</p> <p>Phone: (+49) 7031/624 1550</p>
Equipment	<p>PC with administrator rights</p>
Contact person	<p>Daniel Jenter: Tutor Mail: <a href="mailto:jenterd@hs-albsig.de">jenterd@hs-albsig.de</a> Phone: (+49) 7571/732 9237</p> <p>Britta Varchmin Assistance Mail: <a href="mailto:varchmin@hs-albsig.de">varchmin@hs-albsig.de</a> Phone: (+49) 7571/732 9239</p> <p>Prof. Martin Rieger Lecturer Mail: <a href="mailto:rieger@hs-albsig.de">rieger@hs-albsig.de</a> Phone: (+49) 7571/732 9124</p>

