



Country BULGARIA	Institution Vasil Levski National Military University	Course <b>Computer Networks</b>	ECTS <b>5.0</b>
Service <b>CIS / Cyberops</b>	Minimum Qualification for Lecturers		
Languages <b>English, Bulgarian</b>	<ul style="list-style-type: none"> <li>English: Common European Framework of Reference for Languages (CEFR) Level B2 or NATO STANAG 6001 Level 2.</li> <li>Knowledge of OSI model layers and common network protocols.</li> <li>Knowledge for network terminal configuration.</li> </ul>		
Prerequisites for international participants: <ul style="list-style-type: none"> <li>English: Common European Framework of Reference for Languages (CEFR) Level B1 or NATO STANAG Level 2.</li> <li>The end of the 2nd year of national (military) higher education.</li> <li>Basic knowledge on Information systems (IT).</li> </ul>		Goal of the Module: <ul style="list-style-type: none"> <li>Presentation of the reference network model and its layers.</li> <li>Development of individual skills for configuring network devices.</li> <li>Development of skills for subnetting a corporate network.</li> <li>Observation of transferred network protocols over the network infrastructure.</li> </ul>	

<b>Learning outcomes</b>	Knowledge	<ul style="list-style-type: none"> <li>Computer network infrastructures.</li> <li>Principles, rules and procedures for configuring the network terminals.</li> <li>Risk factors and security in network operation.</li> <li>Routers and switches as intermediate devices.</li> <li>Network protocols in the different OSI layers.</li> <li>Physical access to the network medium.</li> </ul>
	Skills	<ul style="list-style-type: none"> <li>Essential skills for configuring network devices (routers, switches, computers, etc.).</li> <li>Subnetting into small portions of a large network.</li> <li>Building a small office - home office (SOHO) network.</li> <li>Network resource management in a basic scale.</li> <li>Troubleshooting basic network malfunction problems.</li> </ul>
	Competences	<ul style="list-style-type: none"> <li>Network topology definition.</li> <li>Description of protocol header fields semantics.</li> <li>Describing reasons for network malfunction or bottlenecks.</li> <li>IPv4 and IPv6 protocols usage.</li> <li>Network data transfer techniques.</li> </ul>



### Verification of learning outcomes

- **Observation:** Throughout the Course students are to accomplish different practical tasks individually or in groups. The Course has two modules. After completion of the network tasks, students will be evaluated by troubleshooting network connection.
- **Test:** At the end each module of the Course the students have to accomplish specific practical tasks given by the examination commission by:
  - proper network planning;
  - verifying the configurations (test the network for operation).

Course Details		
Main Topic	Recommended WH	Details
<b>Chapter I “Local area computer networks (LAN)”</b>		
Physical network connection	15	<ul style="list-style-type: none"> <li>• General considerations regarding the physical medium for data transmission</li> <li>• Knowledge of essential principles, rules and procedures for connecting the network devices.</li> <li>• Knowledge of risk factors and safety measures issued to prevent accidents while connecting hardware devices.</li> </ul>
Basic network protocols	15	<ul style="list-style-type: none"> <li>• Subnetting a given network address space.</li> <li>• Installing network drives and configuration.</li> <li>• Internet Protocol operation overview.</li> <li>• Transmission Control Protocol operation overview.</li> <li>• Exploring HTTP as basic web protocol.</li> </ul>
<b>Chapter II “Wide area computer networks (WAN)”</b>		
Network information exchange protocols	15	<ul style="list-style-type: none"> <li>• General considerations regarding border network gateways.</li> <li>• Knowledge of WAN devices.</li> </ul>
Configuring WAN network	15	<ul style="list-style-type: none"> <li>• Routing information protocol (RIPv1 and RIPv2).</li> <li>• Border gateway protocol (BGP).</li> <li>• Enhanced interior gateway routing protocol (EIGRP).</li> <li>• Open shortest path first (OSPFv1 and OSPFv2).</li> </ul>
<b>Additional hours to increase the learning outcomes</b>		
Self-Study	30	<ul style="list-style-type: none"> <li>• Enhancing knowledge by studying specific documents.</li> <li>• Reflection of the topics issued.</li> </ul>
Total	60	Lectons: 30 Practice: 30