

# Information Technology

## Competences:

**Game Programming**

**Cybersecurity**

**Data Center Technology**

**Data Networks Engineering**

<http://www.ictlab.kyamk.fi>

<https://fi-fi.facebook.com/ICTLAB.KyAMK>

<https://fi-fi.facebook.com/KyAMK.GameLab>

- **We are enthusiastic. Action in the team of Information Technology in Kymenlaakso University of Applied Sciences is expanding rapidly. In autumn 2015 starts not only the normal daytime studies but also studies of game programming as blended learning. For exchange and double degree students there will be offered studies of data networks engineering for the whole academic year. Project activities are high. The modern small datacenter for studying and RDI purposes has been introduced. The datacenter works as a platform for rapidly growing cyber security studies.**

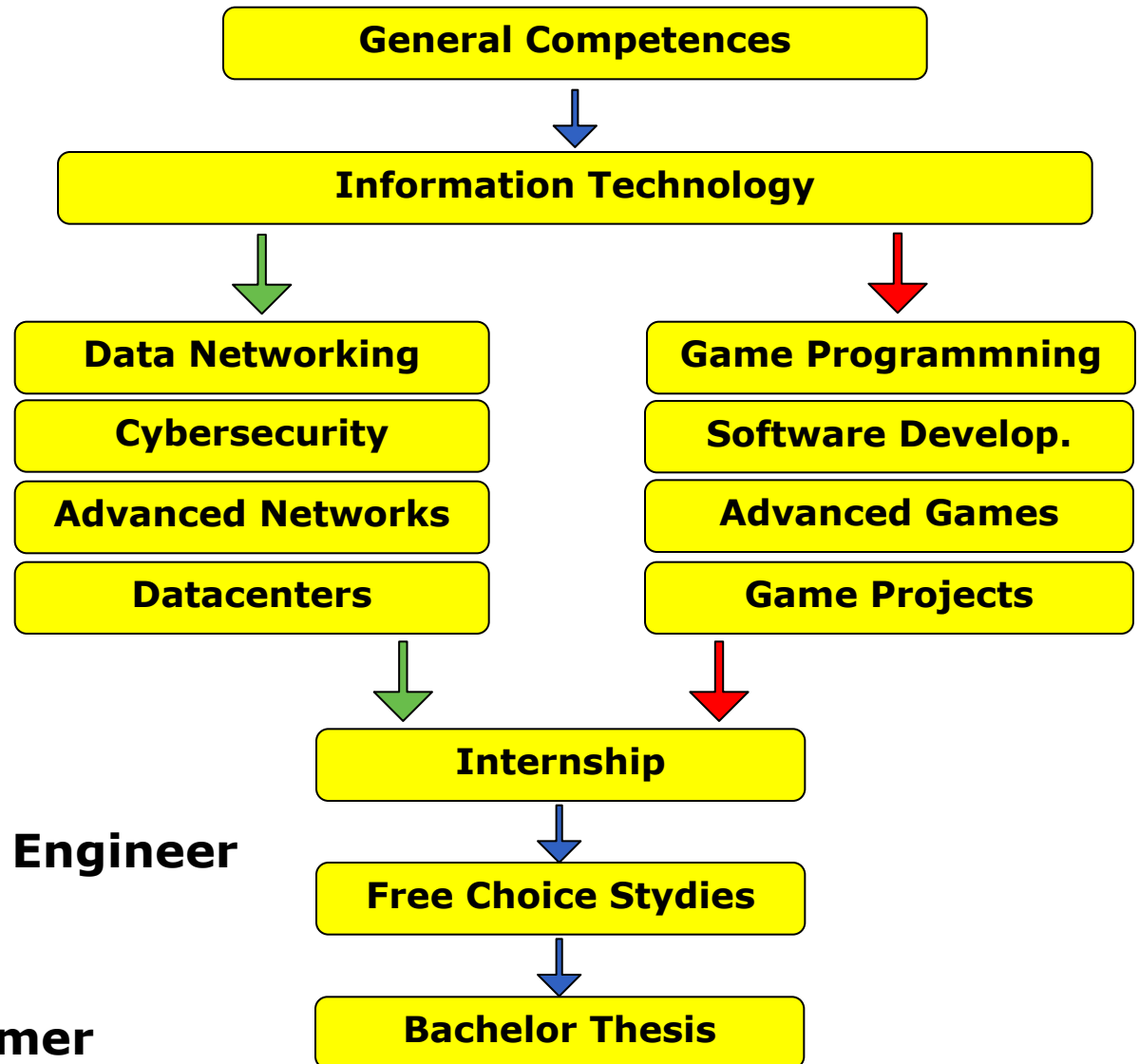


- **Four Competence areas**
  - **Game Programming**
  - **Cybersecurity**
  - **Data Center Technology**
  - **Networking Technology**



- **Two areas of specialisation**

Specialisation area of Data Networks Engineering is offered in English



→ **Data Networks Engineer**

→ **Game Programmer**

- **Double degree programme is a part of full time degree programme in Information Technology. Studies lead to a Bachelor`s Degree of Engineering (BSc. Eng). This education gives competences in Data Networks Engineering. More than 50% of the whole curriculum is carried out with learning by doing -method in small groups (2-3 students/group). There are lots of laboratory works, case studies and project works with real equipment. The ICT learning environment includes several laboratories: real operator level network in production (SimuNet), Cisco Networking lab with eight pods and Cybersecurity & Datacenter lab for practicing penetration testing and running of small datacenter. The studies require CCNA (Cisco Certified Network Association) level or equivalent as preliminary knowledge's.**



**Also for exchange students**



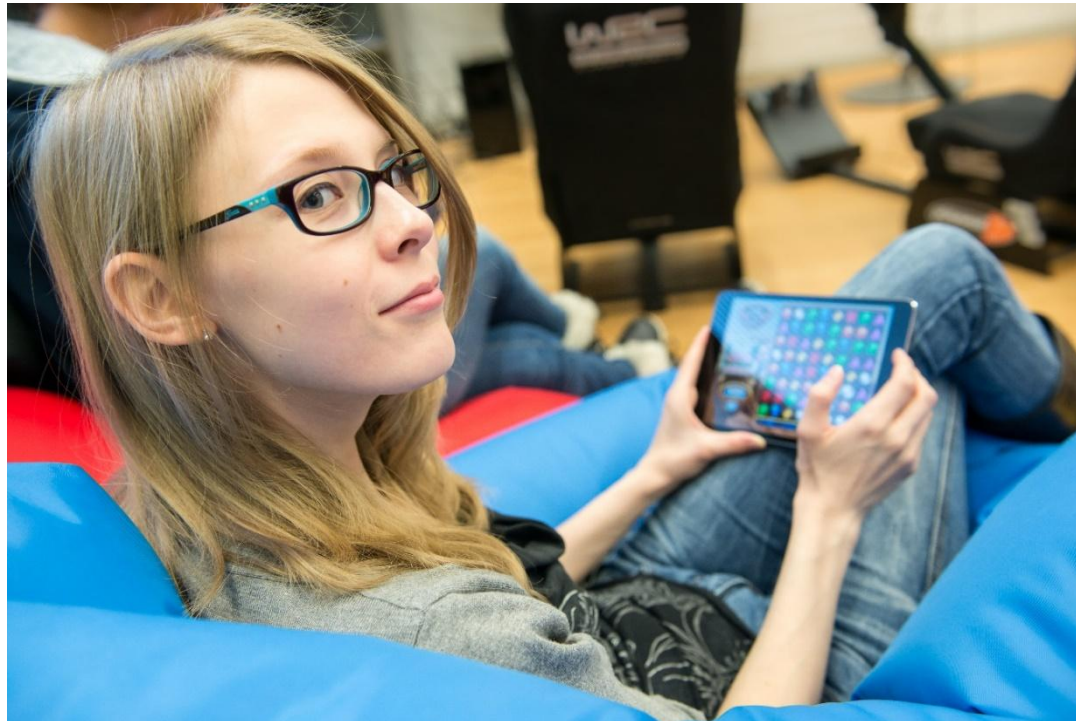
# Data Networks Engineer studies in English

Study unit	Cr	Comments	Labs	Period	
				1-2	3-4
<b>Accredited Studies</b>	<b>165</b>	<b>partner University (Cisco CCNA or eq as prerequisite)</b>			
<b>Language studies</b>					
<b><u>IT English</u></b>	<b>5</b>	<b>other possibility: Finnish basics</b>	<b>0 %</b>	<b>5</b>	
<b>Networking Engineering</b>					
<b><u>Datacenter and server hw</u></b>	<b>5</b>	<b>includes datacenter technologies</b>	<b>10 %</b>		<b>5</b>
<b><u>Advanced Network Eng.</u></b>					
<b><u>Advanced Routing</u></b>	<b>5</b>	<b>includes preparing material to Cisco CCNP ROUTE-cert.</b>	<b>80 %</b>		<b>5</b>
<b><u>Advanced Switching</u></b>	<b>5</b>	<b>includes preparing material to Cisco CCNP SWITCH-cert.</b>	<b>80 %</b>	<b>5</b>	
<b><u>Network Troubleshooting</u></b>	<b>5</b>	<b>includes preparing material to CCNP TROUBLESHOOT-cert.</b>	<b>80 %</b>		<b>5</b>
<b><u>Service Provider Networks</u></b>	<b>5</b>	<b>utilizes SimuNet (real operator level network in production)</b>	<b>50 %</b>		<b>5</b>
<b><u>LCCE Project 2</u></b>	<b>5</b>	<b>utilizes SimuNet (real operator level network in production)</b>	<b>95 %</b>	<b>5</b>	
<b>Advanced Network Topics</b>					
<b><u>Virtualization technologies</u></b>	<b>5</b>	<b>virtualizing with Vmware</b>	<b>50 %</b>	<b>5</b>	
<b><u>Windows systems</u></b>	<b>5</b>	<b>planning and maintaining Active Directory</b>	<b>50 %</b>	<b>5</b>	
<b><u>Hacking</u></b>	<b>5</b>	<b>includes pentesting case studies in cybersecurity laboratory</b>	<b>50 %</b>	<b>5</b>	
<b><u>Optical Networks</u></b>	<b>5</b>	<b>various optical technologies</b>	<b>30 %</b>		<b>5</b>
<b><u>Big Picture of Internet pr.</u></b>	<b>5</b>	<b>utilizes SimuNet (real operator level network in production)</b>	<b>95 %</b>		<b>5</b>
<b>Bachelor's Thesis</b>	<b>15</b>	<b>practical part of Thesis is implemented in one of the labs</b>		<b>5</b>	<b>10</b>
<b>Total</b>	<b>240</b>	<b>240 ects total</b>		<b>35</b>	<b>40</b>

- **GameLab is a game programming learning environment in the Information Technology degree programme of Kymenlaakso University of Applied Sciences. GameLab has all the modern tools for developing games in different platforms. It's the place for students for whom programming and especially game programming is a passion.**



- **Playa, Kyamk GameLab ja IGDA Finland Kotka are working now on Metsolan campus! GameLab is involved in the South-Eastern Finland's gaming industry network in which operates more than a dozen companies in the gaming industry, as well as a number of public actors. We are working continually with the gaming industry companies, of which common game testing and game programming training are concrete examples.**

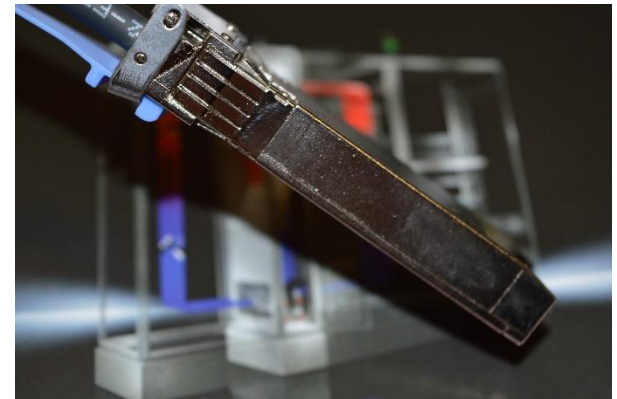
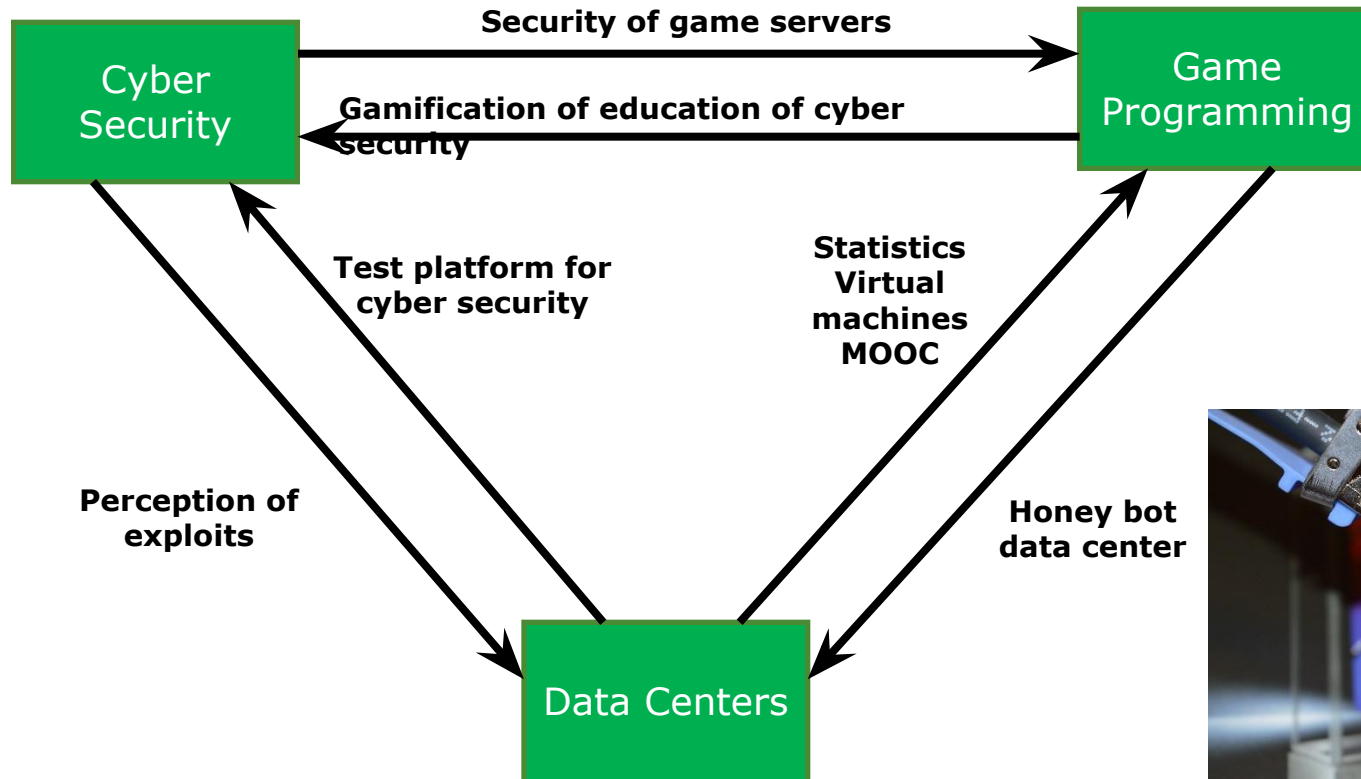




- **CyberLab is a new innovation platform of cyber security. The starting point of this laboratory is the datacenter recently built in Metsola campus of the Kymenlaakso University of Applied Sciences. To the datacenter there will be assembled new modern security solutions, equipment and software needed. Many cyber security services will be piloted In CyberLab with the companies willing to participate. These services would be for example penetration testing, data security review, evaluation and audition.**



- The project will combine datacenter, gamification and cyber security expertise and research by using new innovative ways. The current shortage of skillful persons in these three areas is intended to be covered by creating a new research, expertise and innovation center that will give rise to the field of entrepreneurship and creates jobs in the region.



- **Products and services of cyber security area will be piloted on this new innovation platform. Cyber security skills are delivered to wide audience in the form of cyber security game. With the development of the game piloted there is intention to make research of gamification and monetarisation. The pilot gives guide lines to build new kind of platform for education games.**



- Furthermore a goal is to study data center skills and especially the challenges of cyber security of data centers. The ultimate goal of the project is to give knowledge of cyber security, develop networks and business.

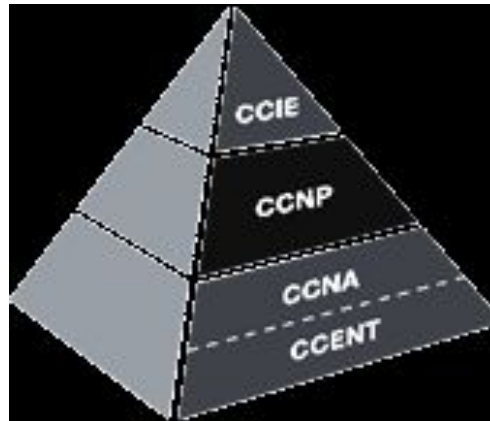


**Picture from CyberLab**





- **KyAMK has been participating Cisco Networking Academy over 15 years**
- **Prepares to Cisco Certificates**



- Real operator level Ipv6 laboratory
- Up and running all the time
- Platform to train migration situations

