

<b>Study program:</b> Information Technologies and Systems				
<b>Course title:</b> Security of Computer Networks				
<b>Professor/assistant:</b> PhD Danko Milašinović				
<b>Type of course:</b> Elective				
<b>ECTS credits:</b> 7				
<b>Prerequisites:</b> Completed course <i>Computer Networks</i> (undergraduate studies)				
<b>Aims of the course:</b> Students become familiar with techniques for detecting and correcting data transmission errors. Students are taught to use different mechanisms to communicate safely, and are familiar with the security required in different layers of network architecture.				
<b>Learning outcomes:</b> Students are able to independently study this field.				
<b>Syllabus:</b> <i>Theoretical part:</i> Codes for detecting and correcting errors (protection of data from errors) <ul style="list-style-type: none"> <li>• Parity codes</li> <li>• Vertical and longitudinal codes</li> <li>• Cyclic codes</li> <li>• Correction codes</li> </ul> Security in computer networks <ul style="list-style-type: none"> <li>• What is networks security?</li> <li>• Principles of cryptography</li> <li>• Symmetric key cryptography (Caesar's cipher, monoalphabetic and polyalphabetic cipher, substitution cipher, bit level encryption, standard for data encryption (DES), an advanced encryption standard (AES))</li> <li>• Encryption by public key (RSA algorithm)</li> <li>• Authentication</li> <li>• Integrity</li> <li>• Distribution and authentication of keys</li> <li>• Access control – network barriers</li> <li>• Attacks and counter measures</li> <li>• Security in many layers</li> </ul> <i>Practical part:</i> Using various mechanisms for safe communication				
<b>Literature:</b> <ol style="list-style-type: none"> <li>1. Habraken J. 2002. Osnove umrežavanja, Mikro knjiga</li> <li>2. Shay W., Savremene komunikacione tehnologije i mreže, Kompjuter Biblioteka, Čačak, 2004 (prevod).</li> <li>3. Pleskonjić D. 2007. Sigurnost računarskih sistema i mreža, Mikro knjiga</li> <li>4. Manojlović Vladislav, Osnovi računarske mehanike, I deo/Podaci i operacije, Akademska misao, Beograd, 2007.</li> </ol>				
<b>Total number of active classes:</b> 6		<b>Lectures:</b> 3	<b>Practical classes:</b> 3	
<b>Teaching methods:</b> Lectures, auditory exercises. Laboratory exercises.				
<b>Grading system</b> (maximum 100 points) grading scale from 5 to 10: below 51 points grade 5, grade 6 from 51- 60 points, grade 7 from 61- 70 points, grade 8 from 71-80 points, grade 9 from 81-90 points, grade 10 from 91- 100 points.				
<b>Pre-exam obligations:</b>		<b>Points:</b>	<b>Final exam:</b>	<b>Points:</b>
Activity during lectures		5	Written exam	50
Practical training		5		
Written tests		30		
Term papers		10		