HANYANG UNIVERSITY

Hanyang International Summer School

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Course Information	**Class No.**	18091	**Course Code**	ISS1165	**Credits**	3
	Course Name	Computer Networks				
	Lecture Schedule	Mon-Thu / 16:00~19:00				
	Course Description	This course discusses about how the computer network works, including several application protocols, such as HTTP, SMTP, DNS, and their secured channel using mostly practical approach. Followed by security aspect, including Firewall, Bandwidth Management, Proxy, and VPN.				
	Course Objective	- Students should be able to explain how computer network works in term of TCP/IP stack and 7 OSI layers (tools: Cisco Packet Tracer and Virtual Machine) - Students should be able to setup and configure web and mail service and how to secure them using FreeBSD or Linux - Students should be able to setup and configure Firewall using FreeBSD or Linux - Students should be able to setup and configure HTTP Proxy and Bandwidth Management and secure the channel using VPN				
	Prerequisite	Basic Computer Literacy and Understanding on Python Programming is needed but not mandatory				
	Materials/Textbooks	1. Andrew S. Tanenbaum and David J. Wetherall, "Computer Networks, Fifth Edition", Pearson Education Limited, 2014 2. Lecture Notes and Animated PowerPoint slides is provided				
Evaluation	**Attendance**	%	**Quiz**	30 %		
	Assignment	%	**Mid-term Exam**	40 %		
	Presentation	%	**Final Exam**	30 %		
	Group Project	%	**Participation**	%		
	Etc.	**Evaluation Item**		**Ratio**		
				%		
				%		
Daily Lecture Plan	**Week 1**	Day 1	Orientation & Opening Ceremony			
		Day 2	Number System, why computer uses binary system Tool: TinkerCAD.com			
		Day 3	TCP/IP Network Protocol, why do we need layers? Encapsulation?			

			Tool: Animated Presentation
		Day 4	Physical Layer, what is happening in physical layer? Wired vs. Wireless? Tool: Cisco Packet Tracer
	Week 2	Day 1	Data Link Layer, how 2 computers communicate with each other? Tool: Cisco Packet Tracer and Wireshark
		Day 2	Network Layer, how can we expand our network? IPv4 vs. IPv6? Tool: Cisco Packet Tracer and Wireshark
		Day 3	Transport Layer, how can we ensure data received by the other end? Tool: Cisco Packet Tracer and Wireshark
		Day 4	Application Layer, how can we provide services? HTTP vs. HTTPS? Tool: Cisco Packet Tracer and Wireshark
	Week 3	Day 1	Mid-Exam
		Day 2	Building a small network using Virtual Machine Tool: Wireshark, Oracle VirtualBox, and your preferred OS (FreeBSD or Ubuntu Server)
		Day 3	Setting up and configure web and mail service Tool: Wireshark, Oracle VirtualBox, and your preferred OS (FreeBSD or Ubuntu Server)
		Day 4	Setting up and configure Proxy and VPN Tool: Wireshark, Oracle VirtualBox, and your preferred OS (FreeBSD or Ubuntu Server)
	Week 4	Day 1	Setting up and configure Firewall and Bandwidth Management Tool: Wireshark, Oracle VirtualBox, and your preferred OS (FreeBSD or Ubuntu Server)
		Day 2	Packet Crafting using Python Scapy Tool: Python Scapy, Wireshark, Oracle VirtualBox, and your preferred OS (FreeBSD or Ubuntu Server)
		Day 3	Final Exam
		Day 4	Future Internet Architecture: Named-Data Networking