



HANYANG UNIVERSITY

Hanyang International Summer School

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Course Information	Class No.	18026	Course Code	ISS1165	Credits	3	
	Course Name	Computer Networks					
	Lecture Schedule	Tue-Fri / 13:00~16:00					
	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	<ul style="list-style-type: none"> - 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	0%	Quiz	30%		
Assignment		0%	Mid-term Exam	40%			
Presentation		0%	Final Exam	30%			
Group Project		0%	Participation	0%			
Etc.		Evaluation Item			Ratio		
					%		
Daily Lecture Plan	Week 1	Day 1	Number System, why computer uses binary system				
			Tool: TinkerCAD.com				

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