수업계획서

◎ 강좌 개요

개발목적	Recently, wireless communication has evolved and changed the way information and data are exchanged. Every little change in wireless technology has been a big step forward when it comes to data exchange, with constant improvements being introduced at regular intervals. Wireless is the future of all technology. Wireless technology is the future of everything. Given the speed at which the world is changing, it would be safe to assume that we are rapidly moving from a wired environment to a completely wireless one. The combination of new revolutionary technologies like 5G, Internet of Things and artificial intelligence has revolutionized things. This course will equip you with the essential skills required in areas such as communications, antenna design, signal processing, and switching system design. You can become a software engineer, network administrator, network security engineer, research engineer, system engineer, telecommunications specialist, etc.

강 좌 명	한 글	무선 통신 네트워크
	영 문	Wireless Communication Networks

강의주제	Wireless Sensor Networks consists of many small distributed wireless computers that form a multi-hop wireless network that can detect the environment and self-configure to transmit data to the base server. Due to advancement in the wireless communication, technologies has lead to the emergence of a new kind of wireless networks, namely Wireless Sensor Networks (WSN). The main objective of this course is to introduce student to the basic of Wireless sensor Networks, where they will learn the basic as well as all the advance concept related with WSN. Student will be able to explain be the operational and functional attributes of different components of mobile networks.

강의개요	Topics of study include an overview of wireless communications and mobile computing systems, signal propagation characteristics of wireless channels, wireless channel modelling, frequency reuse/cellular/microcellular concepts, spread-spectrum modulation for wireless systems, multiple access techniques, and wireless networking standards (e.g., 2.5G, 3G, IEEE 802.11, IEEE 802.15, IEEE 802.16/WiMAX). Some of the topic which we will cover in this course are.
	  Introduction to the wireless communication systems
	  Medium Access Control protocols and mechanisms
	  Routing in wireless and sensor networks
	  Wireless personal area networks -- Blutooth
	  Wireless Local Area Networks — WiFi and DECT
	  Mobile Networks -- 2G, 3G. Architecture and evolution
	  Satellite networks and navigation etc.

학습목표	This course will cover the fundamental aspects of wireless networks, with emphasis on ad hoc & sensor networks. This course will also cover various aspects of wireless networking such as wireless communication fundamentals, fundamentals of cellular communication,

		mobile radio propagation, multiple access techniques, mobility support, channel allocation, Wireless PAN/LAN/MAN standards, mobile ad-hoc networks, wireless sensor networks, and routing in wireless and mobile networks, medium access control, network and transport protocols, unicast and multicast routing algorithms, mobility and its impact on routing protocols, application performance, quality of service guarantees, and security.

주차	주차명 (주제)	주차별 학습 목표	차시	콘텐츠 명	영상길이
1	Introduction to Wireless Communication Networks	Basic Introduction and History of Wireless Communication	1-1	History of Wireless communication	27:50
			1-2	Generations of wireless communication systems Part 1	29:04
			1-3	Generations of wireless communication systems part 2	28:47
2	Introduction to Wireless Communication Networks	History of Wireless Communication and Overview	2-1	Historical Overview of Wireless communication	28:50
			2-2	Wireless Communication Overview	31:41
			2-3	Personal Communication Services	25:03
3	Network protocol and Challenge of Mobile Computing	Network Protocol and layer of WSN	3-1	Network Protocol	29:31
			3-2.	Protocol Layers	31:54
			3-3	Challenges of Mobile Computing and Networking	27:13
4	Radio Propagation – Large-Scale Path Loss	Introduction t Radio and mobile propagation	4-1	Introduction to Radio Wave Propagation	28:12
			4-2	Mobile radio signal propagation	24:52
			4-3	Indoor and Outdoor Propagation	25:21
5	Radio Propagation – Small-Scale Fading and Multipath	Introduction to Fading	5-1	Small-Scale Fading and Multipath Part 1	26:47
			5-2	Small-Scale Fading and Multipath Part 2	24:52
			5-3	Small-Scale Fading	26:04
6	Modulation Techniques for Mobile Radio	Introduction to modulation	6-1	Modulation	31:09
			6-2	Digital Modulation part 1	24:04
			6-3	Digital Modulation part 2	28:18

7	Medium Access Control for Wireless Links	Introduction to different modulation schemes	7-1	Media Access Control	27:31
			7-2	FDMA, TDMA and CDMA	27:08
			7-3	Hybrid Spread Spectrum Techniques	29:59
8	IEEE 802.11 Wireless LANs	Modulation and Wireless introduction	8-1	Revision of Wireless Coding and Modulation	30:15
			8-2	IEEE 802.11 Wireless LANs- Introduction	29:38
			8-3	IEEE 802.11a/b/g/n/ac	33:13
9	Introduction to 60ghz Mm wave wireless Network	60ghz mm wave	9-1	Introduction to 60ghz Mm wave	27:48
			9-2	60GHz Wireless Standard and IEEE 802.11ad	27:25
			9-3	WirelessHD	26:09
10	Introduction to Vehicular Wireless Networks and White Spaces	VANET intrduction	10-1	Vehicular Wireless Networks	29:58
			10-2	Dedicated Short Range Communication (DSRC)	27:02
			10-3	Wireless Networking in White Spaces	28:54
11	Internet of Things(IoT)	Introduction to IoT	11-1	Introduction to Internet of Things part 1	29:37
			11-2	Introduction to Internet of Things Part 2	30:08
			11-3	Wireless Protocols for IoT Part I: Bluetooth part 1	28:17
12	Internet of Things(IoT)	Introduction to Bluetooth and its protocols	12-1	Wireless Protocols for IoT Part I: Bluetooth part 2	25:13
			12-2	Wireless Protocols for IoT Part I: Bluetooth Smart	28:48
			12-3	Wireless Protocols for IoT Part II: IEEE 802.15.4 Wireless Personal Area Network	31:18
13	Internet of Things(IoT)	Wireless protocol for Zigbee	13-1	Wireless Protocols for IoT Part III: Zigbee part 1	27:34
			13-2	Wireless Protocols for IoT Part III: Zigbee part 2	29:26
			13-3	Wireless Protocols for IoT Part III: Zigbee	28:00

14	Internet of Things(IoT)	Wireless Protocol for 6LoWPAN	14-1	Wireless Protocols for IoT : 6LoWPAN Part 1	28:29
			14-2	Wireless Protocols for IoT : 6LoWPAN Part 2	26:38
			14-3	Wireless Protocols for IoT : 6LoWPAN Part 3	26:07
15	Introduction to 5G	Introduction to 5G	15-1	Introduction to 5G Part 1	29:08
			15-2	Introduction to 5G Part 2	28:56
			15-3	Introduction to 5G Part 3	31:05