

Course Syllabus

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|-----------------------|--|--------------------|--------------------------------|
| Semester | Spring, 2016 | Course Title | Mobile Computing |
| Course No. | CSE4053-01 | Course Credit | 3 credits |
| Course Classification | Computer Science and Engineering (3rd, 4th year) | Design Credit | 0 credit |
| Instructor | | Teaching Assistant | |
| Name | Prof. Bongkyo Moon | Name | |
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| Office Hour | 1 hour after class | Office Hour | anytime |

| Course Structure | | | Recommended Prerequisites | | | | |
|--------------------|--|--------|--|----------|------------|---------------|---------|
| Theory | Practice | Design | Computer Networking, Operating System | | | | |
| 3 | 0 | 0 | (https://www.facebook.com/groups/159379994176139/) | | | | |
| Course Objective | - Understand essential hardware and software for mobile computing - Understand various wireless and mobile network systems - Understand mobile multimedia communications and mobile web app. | | | | | | |
| Course Description | This course has its focus on the wireless systems such as WiFi and 3G as well as H/W and S/W for mobile computing. This course also considers various technologies for Internet of Things (IoT), especially IPv6-based wireless networks. In addition, this course examines the basic concept of mobility issues and mobile service platforms. | | | | | | |
| Teaching Method | - paper presentation by students - theoretical lecture using slide presentation | | | | | | |
| Homeworks | - each team should make presentation on the given paper from IEEE Pervasive Computing. - each student should submit the given homeworks for exercise problems. | | | | | | |
| Textbooks | <ul style="list-style-type: none">● [교재] D. P. Agrawal & Q.-A. Zeng, "Introduction to Wireless & Mobile Systems (4th Ed)," CENGAGE, 2016 (김낙명, 강충구, 윤석현 옮김, 무선 및 이동통신 시스템, 2016 예정)● [교재] Z. Shelby and C. Bormann, 6LoWPAN: The Wireless Embedded Internet, Wiley, 2009● 차세대 통신망의 IMS와 VoIP, 민상원, 홍릉과학출판사, 2011● Cisco 시스템즈 IoT 인큐베이션 랩(저)/현정우(역), 사물인터넷의 충격, 인포더박스, 2015● J.-P. Vasseur and A. Dunkels, Interconnecting Smart Objects with IP, MK, 2010● P. Zheng and L. M. Ni, "Smart Phone & Next Generation Mobile Computing," MK, 2006● R. Ghatol and Y. Patel, "Beginning PhoneGap: Mobile Web Framework for JavaScript and HTML5," Apress, 2012● 이병욱, 웹 개발자를 위한 타이젠 모바일 프로그래밍, 엘비오 출판사, 2014● 이준원, "안드로이드 센서 이야기 - 만보계에서 크루즈 미사일까지," 프리렉, 2014● 국중진, 라즈베리파이로 구현하는 사물인터넷 프로젝트, 위키북스, 2015● D. Comer, Computer Networks and Internets, 5th Ed., Pearson● R. Koodli and C. Perkins, "Mobile Internetworking with IPv6," Wiley 2007 (이광수 역, IPv6 이동 인터넷워킹, 홍릉과학출판사, 2008)● H. Sinnreich and A. Johnston, "Internet Communications Using SIP," 2nd Edition," Wiley, 2006 (김병호, 김진천 공역, SIP 커뮤니케이션, 홍릉과학출판사, 2009)● M. Poikselka and G. Mayer, "The IMS: IP Multimedia Concepts and Services, 3rd Ed.," Wiley 2009 | | | | | | |
| Grading | Midterm | Final | Paper presentation | Exercise | Attendance | Participation | Project |
| | 20 % | 25 % | 10 % | 15 % | 5 % | 5 % | 20 % |

Course Layout

| Week | Lecture Topics | Reading Assignments | Homeworks |
|------|---|--|---|
| 1 | Mobile Platforms(AP, OS, Wireless) & Internet of Things(IoT) | Chap.1,15,18 (D. Agrawal) Chap.1, 2, 4, 5, 6, 7, 8 (A. McEwen & H. Cassimally) | |
| 2 | Tizen Mobile Web App. & Internet Protocols | Chap.10 (D. P. Agrawal) Chap. 20, 22, 24, 25 & 26 (D. Comer) | Tizen Mobile Web App |
| 3 | SIP (Session Initiation Protocol) | Chap. 2, 6, 11 & 12 (H. Sinnreich) | |
| 4 | Application Mobility (SIP Mobility) (Terminal, User, Session, Service) | Chap. 15, 18, 19 & 20 (H. Sinnreich) | |
| 5 | Probability Theory & Mobile Radio Propagation | Chap.2 & 3 (D. P. Agrawal) | VoIP testbed & voice packet analysis |
| 6 | Traffic Theory & Cellular Concept | Chap.2 & 5 (D. P. Agrawal) | Exercise1 |
| 7 | Multiple Radio Access IEEE 802.11 Technologies and Access Points | Chap.6 & 12 (D. P. Agrawal) | |
| 8 | Midterm Examination (중간고사) | | |
| 9 | Channel Allocation | Chap.8 (D. P. Agrawal) | |
| 10 | Mobile Communication Systems Existing Wireless Systems | Chap.9 & 11 (D. P. Agrawal) & references | Robot Udon Store |
| 11 | IPv6 & IP Mobility | Chap. 4, 5, 6, 7 & 8 (R. Koodli) & references | Exercise2 |
| 12 | Mobile IPv6 | Chap. 9, 10, 11 & 12 (R. Koodli) | |
| 13 | Sensor Networks 6LoWPAN Overview & Format | Chap.14 (D. P. Agrawal) Chap.1, 2 (Z. Shelby) | |
| 14 | Using 6LoWPAN & Application Protocols | Chap.5, 6 (Z. Shelby) | paper presentation |
| 15 | Wireless TCP | Chap.10 (D. P. Agrawal) & references | |
| 16 | Final Examination (기말고사) | | |