MOBILE COMPUTING			
(Effective from the academic year 2018 -2019)			
SEMESTER – VIII			
Course Code	18CS821	CIE Marks	40
Number of Contact Hours/Week	3:0:0	SEE Marks	60
Total Number of Contact Hours	40	Exam Hours	03
CREDITS –3			

Course Learning Objectives: This course (18CS821) will enable students to:
- Define concepts of wireless communication.
- Compare and contrast propagation methods, Channel models, capacity calculations multiple antennas and multiple user techniques used in the mobile communication.
- Explain CDMA, GSM. Mobile IP, WImax and Different Mobile OS
- Illustrate various Markup Languages CDC, CLDC, MIDP; Programming for CLDC, MIDlet model and security concerns

Module 1	Contact Hours
Mobile Computing Architecture: Architecture for Mobile Computing, 3-tier Architecture, Design Considerations for Mobile Computing. Emerging Technologies: Wireless broadband (WiMAX), Mobile IP: Introduction, discovery, Registration, Tunneling, Cellular IP, Mobile IP with IPv6. Wireless Networks : Global Systems for Mobile Communication (GSM): GSM Architecture, Entities, Call routing in GSM, PLMN Interface, GSM Addresses and Identities, Network Aspects in GSM, Mobility Management, GSM Frequency allocation. Short Service Messages (SMS): Introduction to SMS, SMS Architecture, SMMT, SMMO, SMS as Information bearer, applications **Textbook1: 2.4 - 2.6, 4.4 - 4.6, 5, 6.** **RBT: L1, L2**	08
Module 2	
GPRS and Packet Data Network, GPRS Network Architecture, GPRS Network Operations, Data Services in GPRS, Applications for GPRS, Billing and Charging in GPRS. Spread Spectrum technology, IS-95, CDMA versus GSM, Wireless Data, Third Generation Networks, Applications on 3G, Mobile Client: Moving beyond desktop, Mobile handset overview, Mobile phones and their features, PDA, Design Constraints in applications for handheld devices. **Textbook 1: 7,9.2 - 9.7, 12.2 - 12.6** **RBT: L1, L2**	08
Module 3	
Mobile OS and Computing Environment: Smart Client Architecture, The Client: User Interface, Data Storage, Performance, Data Synchronization, Messaging. The Server: Data Synchronization, Enterprise Data Source, Messaging. Mobile Operating Systems: WinCE, Palm OS, Symbian OS, Linux, Proprietary OS Client Development: The development process, Need analysis phase, Design phase, Implementation and Testing phase, Deployment phase, Development Tools, Device Emulators **Textbook 2: 7, 8.** **RBT: L1, L2**	08
Module 4	
Building Wireless Internet Applications: Thin client overview: Architecture, the client, Middleware, messaging Servers, Processing a Wireless request, Wireless Applications	08

Protocol (WAP) Overview, Wireless Languages: Markup Languages, HDML, WML, 10 Hours HTML, cHTML, XHTML, VoiceXML. **Textbook 2: 11, 12, 13** **RBT: L1, L2**	
Module 5	
J2ME: Introduction, CDC, CLDC, MIDP; Programming for CLDC, MIDlet model, Provisioning, MIDlet life-cycle, Creating new application, MIDlet event handling, GUI in MIDP, Low level GUI Components, Multimedia APIs; Communication in MIDP, Security Considerations in MIDP. **Textbook 1: 15.1 - 15.10** **RBT: L1, L2**	08

Course Outcomes: The student will be able to :

The students shall able to:
- Explain state of art techniques in wireless communication.
- Discover CDMA, GSM. Mobile IP, WImax
- Demonstrate program for CLDC, MIDP let model and security concerns

Question paper pattern:
The question paper will have ten questions.
There will be 2 questions from each module.
Each question will have questions covering all the topics under a module.
The students will have to answer 5 full questions, selecting one full question from each module.

Text Books:
1. Ashok Talukder, Roopa Yavagal, Hasan Ahmed: Mobile Computing, Technology, Applications and Service Creation, 2nd Edition, Tata McGraw Hill, 2010.
2. Martyn Mallik: Mobile and Wireless Design Essentials, Wiley India, 2003

Reference Books:
1. Raj kamal: Mobile Computing, Oxford University Press, 2007.
2. Iti Saha Misra: Wireless Communications and Networks, 3G and Beyond, Tata McGraw Hill, 2009.