CSS207: MOBILE COMPUTING

Hours/Week: 4 I.A. Marks: 30

Credits: 4 Exam. Marks: 70

Course Learning Objectives: Students will able to try,

1. The computer systems perspective on the converging areas of wireless networking, embedded systems, and software
2. To provide an overview of Wireless Communication networks area and its applications in communication engineering.
3. The contribution of Wireless Communication networks to overall technological growth.
4. Explain the various terminology, principles, devices, schemes, concepts, algorithms and different methodologies used in Wireless Communication Networks.

Course Outcomes: After completing the course, the students will be able to,

CO1 Discuss cellular radio concepts and identify various propagation effects.

CO2: Have knowledge of the mobile system specifications.

CO3: Classify multiple access techniques in mobile communication.

CO4: Outline cellular mobile communication standards and analyze various methodologies to improve the cellular capacity.

C05: Explain the principles and theories of mobile computing technologies and describe infrastructures and technologies of mobile computing technologies.

C06: List applications in different domains that mobile computing offers to the public, employees, and businesses.

C07: Describe the possible future of mobile computing technologies and applications.

UNIT-I **12 Hrs.**

Introduction to Mobile Computing: applications, a simplified reference model, Wireless Transmission: frequencies of radio transmission, signals, antennas, signal propagation, multiplexing, modulation, spread spectrum, cellular system. Media Access Control: motivation for a specialized MAC, SDMA, FDMA, TDMA, CDMA, and Comparisons.

UNIT-II **12Hrs.**

Telecommunications systems: GSM-Mobile services, System architecture, Radio interface, Protocol, Security,DECT- System architecture, Protocol architecture, Wireless LAN: Infrared vs. radio transmission, Infrastructure and ad-hoc networks, IEEE 802.11, HPERLAN, Bluetooth.

UNIT-III **12Hrs.**

Mobile Network Layer: Mobile IP, Dynamic host configuration protocol, Mobile ad-hoc networks-Routing, Destination sequence distance vector, Dynamic source routing.Mobile Transport Layer: Traditional TCP, classical TCP improvements, TCP over 2.5/3G wireless networks.

UNIT-IV **12Hrs.**

Support for Mobility:FileSystems,World Wide Web,Wireless Application Protocol (WAP)-Architecture, Wireless datagram protocol, transport layer security, Wireless transaction protocol, Wireless session protocol, Wireless application environment, Wireless markup language, WMLScriptand WAP 2.0.

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REFERENCE BOOKS:

1. Jochen Schiller, Mobile Communications‖, PHI, Second Edition, 2003.
2. Prasant Kumar Pattnaik, Rajib Mall, Fundamentals of Mobile Computing, PHI Learning Pvt.Ltd, New Delhi , 2012.
3. Dharma Prakash Agarval, Qing and An Zeng, "Introduction to Wireless and Mobile systems",Thomson Asia Pvt Ltd, 2005.
4. UweHansmann, LotharMerk, Martin S. Nicklons and Thomas Stober, Principles of Mobile Computing, Springer, 2003.
5. William.C.Y.Lee, Mobile Cellular Telecommunications, Analog and Digital Systems, Second Edition,TataMcGraw Hill Edition ,2006.
6. C.K.Toh, AdHoc Mobile Wireless Networks‖, First edition, Pearson Education, 2002.