

KTU BTECH S8 SYLLABUS

CST476 MOBILE COMPUTING (2019 SCHEME)

Syllabus

Module - 1 (Mobile Computing Basics)

Introduction to mobile computing — Functions, Middleware and Gateways, Application and services. Mobile computing architecture — Internet: The Ubiquitous network, Three-tier architecture for Mobile Computing, Design considerations for mobile computing.

Module —2 (Wireless Transmission and Communication Systems)

Spread spectrum — Direct sequence, Frequency hopping. Medium Access Control — Space Division Multiple Access (SDMA), Frequency Division Multiple Access (FDMA), Time Division Multiple Access (TDMA), Code Division Multiple Access (CDMA). Satellite Systems — Basics, Applications, Geostationary Earth Orbit (GEO), Low Earth Orbit (LEO), Medium Earth Orbit (MEO), Routing, localization, Handover. Telecommunication Systems - Global System for Mobile Communication (GSM) services, Architecture, Handover, Security.

Module — 3 (Wireless LANs)

Wireless LAN - Advantages, Design goals, Applications, Infrastructure Vs Ad-hoc mode, IEEE 802.11 System Architecture, Protocol Architecture, Physical layer, Medium Access Control layer, HIPERLAN-1, Bluetooth.

Module — 4 (Mobile Network and Transport Layer)

Mobile network layer — Mobile Internet Protocol (IP), Dynamic Host Configuration Protocol (DHCP), Mobile ad-hoc networks — Routing, Dynamic Source Routing (DSR), Destination Sequence Distance Vector (DSDV), Ad-hoc routing protocols. Mobile transport layer — Traditional Transmission Control Protocol (TCP), Improvements in Classical TCP. Wireless Application Protocol (WAP) - Architecture, Wireless Datagram Protocol (WDP), Wireless Transport Layer Security (WTLS), Wireless Transaction Protocol (WTP), Wireless Session Protocol (WSP).

Module — 5 (Mobile Security and Next Generation Networks)

Security issues in mobile computing - Information security, Security techniques and algorithms, Security models. Next generation networks - Orthogonal Frequency Division Multiplexing (OFDM), Wireless Asynchronous Transfer Mode (W ATM), Multi-Protocol Label Switching (MPLS), 10 pillars of 5G, Security for 5G communication.

Text books

1. Asoke K. Talukder, Hasan Ahmad, Roopa R Yavagal, *Mobile Computing Technology- Application and Service Creation*, 2/e, McGraw Hill Education.
2. Jochen Schiller, *Mobile Communications*, Pearson Education Asia, 2008.
3. Jonathan Rodriguez, *Fundamentals of 5G Mobile Networks*, Wiley Publishers, 2015.

Reference Books

1. Raj Kamal, *Mobile Computing*, 2/e, Oxford University Press.
2. Andrew S. Tanenbaum, *Computer Networks*, PHI, 3/e, 2003
3. Theodore S. Rappaport, *Wireless Communications Principles and Practice*, 2/e, PHI, New Delhi, 2004.
4. Curt M. White, *Fundamentals of Networking and Communication* 7/e, Cengage learning.