UNIT – 8 **6 Hours**

Verification, Calibration, and Validation; Optimization: Model building, verification and validation; Verification of simulation models; Calibration and validation of models, Optimization via Simulation

Text Books:

1. Jerry Banks, John S. Carson II, Barry L. Nelson, David M. Nicol: Discrete-Event System Simulation, 5th Edition, Pearson Education, 2010.
   (Listed topics only from Chapters1 to 12)

Reference Books:

1. Lawrence M. Leemis, Stephen K. Park: Discrete – Event Simulation: A First Course, Pearson Education, 2006.
2. Averill M. Law: Simulation Modeling and Analysis, 4th Edition, Tata McGraw-Hill, 2007.

WIRELESS NETWORKS AND MOBILE COMPUTING

Sub Code: 10IS831	**IA Marks**	**: 25**
Hrs/Week: 04	**Exam Hours**	**: 03**
Total Hrs: 52	**Exam Marks**	**: 100**

PART-A

UNIT – 1 **6 Hours**

Mobile Computing Architecture: Types of Networks, Architecture for Mobile Computing, 3-tier Architecture, Design Considerations for Mobile Computing

UNIT – 2 **7 Hours**

Wireless Networks – 1: GSM and SMS: Global Systems for Mobile Communication (GSM and Short Service Messages (SMS): GSM Architecture, Entities, Call routing in GSM, PLMN Interface, GSM Addresses and Identities, Network Aspects in GSM, Mobility Management, GSM Frequency allocation. Introduction to SMS, SMS Architecture, SM MT, SM MO, SMS as Information bearer, applications

UNIT – 3 **6 Hours**

Wireless Networks – 2: GPRS : GPRS and Packet Data Network, GPRS Network Architecture, GPRS Network Operations, Data Services in GPRS, Applications for GPRS, Billing and Charging in GPRS

UNIT – 4 **7 Hours**

Wireless Networks – 3: CDMA, 3G and WiMAX: Spread Spectrum technology, IS-95, CDMA versus GSM, Wireless Data, Third Generation Networks, Applications on 3G, Introduction to WiMAX.

PART - B

UNIT – 5 **6 Hours**

Mobile Client: Moving beyond desktop, Mobile handset overview, Mobile phones and their features, PDA, Design Constraints in applications for handheld devices.Mobile IP: Introduction, discovery, Registration, Tunneling, Cellular IP, Mobile IP with IPv6

UNIT – 6 **7 Hours**

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.

UNIT – 7 **6 Hours**

Building, Mobile Internet Applications: Thin client: Architecture, the client, Middleware, messaging Servers, Processing a Wireless request, Wireless Applications Protocol (WAP) Overview, Wireless Languages: Markup Languages, HDML, WML, HTML, cHTML, XHTML, VoiceXML.

UNIT – 8 **7 Hours**

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.

Text Books:

1. Dr. Ashok Talukder, Ms Roopa Yavagal, Mr. Hasan Ahmed: Mobile Computing, Technology, Applications and Service Creation, 2d Edition, Tata McGraw Hill, 2010
2. Martyn Mallik: Mobile and Wireless Design Essentials, Wiley, 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.