



St. JOHN'S COLLEGE OF ARTS & SCIENCE

(Accredited with B++ by NAAC & Approved by UGC under section 2(f) & 12(B) status)

(Affiliated to Manonmaniam Sundaranar University, Tirunelveli)

(A Christian Minority Institution)

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DEPARTMENT OF BCA ELECTIVE PAPERS

V	III	34	Core	Software engineering	4	4	0	0	4
	III	35	Core	Web Technology	5	5	0	0	4
	III	36	Core	RDBMS	6	6	0	0	4
	III	37	Major Practical V	RDBMS Lab	4	0	0	4	2
	III	38	Major Elective I	Artificial Intelligence/Design and Analysis of Algorithm/cyber security/multimedia	4	4	0	0	4
	III	37	Project	Mini Project	5	0	0	5	4
	IV	38	Common	Personality development	2	2	0	0	2
	Sub Total				30				24
	III	39	Core	Operating systems	4	4	0	0	4
VI	III	40	Core	Computer networks	5	5	0	0	4
	III	41	Core	Computer graphics	6	6	0	0	4
	III	43	Major Practical VI	Graphics Lab	4	0	0	4	2
	III	44	Major elective II	Web services/software project management/ mobile communication/system programming	4	4	0	0	4
	III	45	Project	Major Project -(group)	7	0	0	0	7
	Sub Total				30				25

Total Credit = 21+21+25+26+24+25 >= 140 (Excluding Computer era & Yoga)

L- Lecture

T- Tutorial

P- Practical

Distribution of marks between External and Internal Assessment is

For Theory 75 : 25 For Practical 50 : 50

MOBILE COMMUNICATION

L T P C
4 0 0 4

COURSE OBJECTIVES:

- To study the need and nature of mobile applications.
- To learn the tools and platforms required for mobile applications.
- To understand the design issues in mobile applications.

UNIT I INTRODUCTION

Mobile Communication: Need for Mobile Communication – Requirements of Mobile Communication – History of Mobile Communication – Properties of Wireless Medium – Radio Propagation – Propagation Coverage Calculation. Introduction to Cellular Mobile Communication: Cellular Structure – Frequency Reuse – System Architecture – Authentication Centre (AUC) – Home Location Register (HLR) – Visiting Location Register (VLR) – Equipment Identify Register (EIR) – Base Station System - Cellular Mobile Communication Switching.

(12 L)

UNIT II VARIOUS STANDARDS

Mobile Communication Standards: First generation Wireless Networks – Second generation Wireless System – Third generation and Beyond Wireless Systems – Implementation Organization – Regional Organization – Global Organization – Global System for Mobile communication (GSM) – GSM Architecture – Advanced Mobile Phone Service (AMPS) – Digital Advanced Mobile Phone Service.

Cordless Telephony Standards: - Personal Access Communication Standards (PACS) – EIA/TIA IS-136-EIA TIA IS – 95 Standards – Digital European Cordless Telephone (DECT) – Personal Handy Phone System (PHS) – IEEE 802.11 - Other Standards – Handoff Techniques - Handoff Detection and Assignment – Types of Handoff – Mobile controlled Handoff – Network controlled Handoff – Mobile Assisted handoff – Radio Link Transfer – Roaming Management – Connection to Public Telephone Network – Connection from Mobile Unit to a Fixer User, Cellular. System . Spectrum: Adaptive channel allocation – Frequency Division – Spectrum Utilization – Channel Reservation for Handoff Calls – Control Channels – Channel Assignment Methods – Channel Borrowing and Sharing – Non – Fixed Assignment Methods – Permanent Cell Splitting – Temporary Cell Splitting.

(12 L)

UNIT III COMMUNICATION SYSTEMS

Cordless Mobile Communication System: Cordless Telephone Home – Multichannel Cordless Telephone System – Wireless Private Box Exchange History of Data networks – Classification of Mobile Data Networks – Independent Data networks – Shared Mobile Data – Overlay Mobile Data – Cellular Digital Part data (CDPD) System – Architecture of CDPD – Satellite Classification – Earth Orbit Satellites – Medium Earth Orbit Satellite, Low Earth Orbit Global Satellite Communication. Changeover from One Satellite to Requirements of Global Mobile Communication – Global User Number – Configuration – Third Generation Global Mobile System for mobility.
(12 L)

UNIT IV INTERFERENCES

Interferences in Cellular Mobile Communication: Nature of Co- Channel Interference – Measurement of Co- Channel Interference - Measurement of Co- Channel Interference with mobile Unit – Frequency Reuse - Co- Channel Interference Omni directional Radiation – directional Antennas for Co- Channel Interference Reduction – Other Methods of Co- Channel Reduction – Non-Co- Channel Interference – Measurement of Signal to Noise and Distortion Ratio (SINAD) – Design Objective – Basic Specification - Co- Channel Interference Reduction. Factor – Adjacent Channel Interference – Propagation Attenuation – Fading – Factors to be Considered at the Base Station – Working of Mobile IP – Wireless Threads – Authentication and Access control – Secrecy to Communication – Anonymity – Security Arrangement in CDMA – Security of Wireless Data Networks.
(12 L)

UNIT V WIRELESS LOCAL LOOP ARCHITECTURE

Components in WLL – Problems in WLL – Modern Wireless Local Loop – Local Multipoint Distribution Service (LMDS) - Properties of WAP – Bearer Services – Wireless Datagram Protocol (WDP) – Wireless Transport Layer Security (WTLS) – WAP Transaction Protocol (WTP) Wireless Session Protocol (WSP) Wireless Application Environment (WAE) – Components Integration – Bearer Adaptation – WAP Client Supporting Networks – System Description – Advantages of Microcellular – Layout of the Optical Fiber Microcellular Communication System – Need for Ad hoc Networks – MANET and Technical Factors Affecting Ad hoc Network - Ad hoc Nodes System Description – Routing in Ad hoc Network – Bluetooth Technology – Limitation on the Bluetooth Physical Layer – Types of Intelligent Cells – Power Delivery Intelligent Cells – Processing Gain Intelligent Cells – User Controlled Services – Reconfigurable Technology – Vision of 4G – 4G Mobile System Convergence.
(12 L)

CYBER SECURITY

L T P C
4 0 0 4

COURSE OBJECTIVES

- To describe different classes of attacks.
- To describe new and emerging IT and IS technologies.
- To analyze threats and risks within context of the cyber security architecture.

UNIT – 1 INTRODUCTION TO INFORMATION SECURITY

Introduction – The History of Information Security – What is Security – Critical Characteristics of Information – NSTISSC Security Model – Components of an Information System – Securing Components – Balancing Information Security and Access – Approaches to Information Security Implementation – The Systems Development Life Cycle – The Security Systems development life cycle – Security Professional and the Organization – Communities of Interest – Information Security – Is it an Art or a Science. The Need for Security: Introduction – Business Needs First – Threats – Attacks – Secure Software Development. **(12 L)**

UNIT – 2 RISK MANAGEMENT & PLANNING

Introduction – An overview of Risk Management – Risk Identification – Risk Assessment – Risk control Strategies – Selecting a Risk control Strategy – Quantitative versus qualitative risk control practices – Risk Management Discussion Points – Recommended Risk Control Practices. Planning for Security: Introduction – Information Security Policy, Standards and Practices – The Information Security Blueprint – Security Education, Training and Awareness Program – Continuity Strategies. Security Technology: Firewalls and VPNs: Introduction – Physical Design – Firewalls – Protecting Remote Connections. **(12 L)**

UNIT – 3 SECURITY TECHNOLOGY

Introduction – Intrusion Detection and Prevention System (IDS and IPSs) – Honey Pots, Honey Nets and Padded Cell Systems – Scanning and Analysis Tools – Access Control Devices. Cryptography: Introduction – Foundations of Cryptology – Cipher Methods – Cryptographic Algorithms – Cryptographic Tools. **(12 L)**

UNIT – 4 SECURITY IMPLEMENTATION

Physical Security: Introduction – Physical Access Controls – Fire Security and Safety – Failure of Supporting Utilities and Structural Collapse – Interception of Data – Mobile and Portable Systems – Special Considerations for Physical Security Threats. Implementing Information Security: Introduction – Information Security Project Management – Technical Topics of Implementation – Non technical Aspects of Implementation – Information Systems Security Certification and Accreditation. **(12 L)**

UNIT - 5 SECURITY AND INFORMATION SECURITY
Security and Personnel: Introduction - Positioning & Staffing the Security Function - Credentials of Information Security Professionals - Employment Policies and Practices - Security Considerations for Nonemployees - Internal Control Strategies - Privacy and the Security of Personal Data. Information Security Maintenance: Introduction - Security Management Models - The Maintenance Model - Digital Forensics. **(12 L)**

COURSE OUTCOMES:

- Evaluate the computer network and information security needs of an organization.
- Assess cyber security risk management policies in order to adequately protect an organization's critical information and assets.
- Measure the performance of security systems within an enterprise-level information system.

TEXT BOOK:

1. Principles and Practices of Information Security - Dr Michael E. Whitman, CISM, CISSP Herbert J. Mattord, CISM, CISSP - Cengage Learning India Private Limited, Indian fourth edition Reprint , 2010.



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DECLARATION

I hereby declare that the details and information given above are complete and true to the best of my knowledge and belief.


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