

# JES, JHARSUGUDA

## Lesson Plan

|                                   |  |  |
|-----------------------------------|--|--|
| Name                              | <b>RABI KUMAR DARJI</b>  | Total Hrs planned:60<br>Total Hrs per week: 04 |
| Subject: Code/Name                | <b>CST-603</b>   | <b>CNS</b>                                     |
| Semester/Programme/<br>Department | 6 <sup>th</sup> Sem / Diploma/<br>Information Technology   | <b>Session: 2022 - 23</b>                      |
| Course Objective                  | <ol style="list-style-type: none"><li>1. To understand basics of Cryptography and Network Security.</li><li>2. To be able to secure a message over insecure channel by various means.</li><li>3. To learn about how to maintain the Confidentiality, Integrity and Availability of a data.</li><li>4. To understand various protocols for network security to protect against the threats in the networks.</li></ol> |  |

| Sl.No | Detail Description of Topics/Subtopics                      | Mode of Lecture |
|-------|---|-----------------|
| 1     | <b>Chapter1: Possible attacks on Computers</b>              | Chalk & talk    |
| 2     | The need for security                                       | Chalk & talk    |
| 3     | Security approach   | Chalk & talk    |
| 4     | Principles of security                                      | PPT             |
| 5     | Types of attacks  | NPTEL VIDEO     |
| 6     | Revision of Chapter 1                                       | Questionnaires  |
| 7     | <b>Chapter2: Cryptography Concepts</b>                      | Chalk & talk    |
| 8     | Plain text  | NPTEL VIDEO     |
| 9     | Cipher Text   |                 |
| 10    | Substitution techniques                                     | PPT             |
| 11    | Transposition techniques                                    | NPTEL VIDEO     |
| 12    | Encryption  | Chalk & talk    |
| 13    | Decryption  |                 |
| 14    | Revision of Chapter 2                                       | Questionnaires  |
| 15    | <b>Chapter 3: Symmetric &amp; Asymmetric key algorithms</b> | Chalk & talk    |

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|    |   |                       |
|----|---|-----------------------|
| 16 | Symmetric key   | Chalk & talk          |
| 17 | Types of algorithm in Symmetric key                                   |                       |
| 18 | Overview of Symmetric key cryptography                                | PPT                   |
| 19 | Data encryption standards   | Chalk & talk          |
| 20 | Over view of Asymmetric key cryptography                              | Chalk & talk          |
| 21 | Creating an Object  | Chalk & talk          |
| 22 | The RSA algorithm   | NPTEL VIDEO           |
| 23 | Symmetric   | Chalk & talk          |
| 24 | Asymmetric key cryptography   |                       |
| 25 | Digital signature   | NPTEL VIDEO           |
| 26 | Revision of Chapter 3   | Questionnaires & Quiz |
| 27 | <b>Chapter 4: Digital certificate &amp; Public key infrastructure</b> | Chalk & talk          |
| 28 | Digital certificates  | PPT                   |
| 29 | Private key management  | Chalk & talk          |
| 30 | PKIX Model  | Chalk & talk          |
| 31 | Public key cryptography standards                                     | NPTEL VIDEO           |
| 32 | Revision of Chapter 4   | Questionnaires        |

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|----|--|----------------|
| 33 | <b>Chapter 5: Internet security protocols</b>                                  | Chalk & talk   |
| 34 | Basic concept  | PPT            |
| 35 | Secure socket layer  | Chalk & talk   |
| 36 | Secure socket layer  | PPT            |
| 37 | Transport layer security   | NPTTEL VIDEO   |
| 38 | Secure Hyper text transfer protocol(SHTTP)                                     | Chalk & talk   |
| 39 | Difference between HTTP & SHTTP  | PPT            |
| 40 | Time stamping protocol (TSP)   | Chalk & talk   |
| 41 | Secure electronic transaction (SET)  | Chalk & talk   |
| 43 | Revision of Chapter 5  | Questionnaires |
| 44 | <b>Chapter 6 : User authentication</b>   | Chalk & talk   |
| 45 | Authentication basics  | Chalk & talk   |
| 46 | Authentication basics  | PPT            |
| 47 | Password   | NPTTEL VIDEO   |
| 48 | Authentication Tokens  | Chalk & talk   |
| 49 | Certificate based authentication   | PPT            |
| 50 | Biometric authentication   | Chalk & talk   |
| 51 | Difference between certificate based authentication & biometric authentication | PPT            |
| 52 | Revision of Chapter 6  | Questionnaires |
| 53 | <b>Chapter 7 : Network Security &amp; VPN</b>                                  | Chalk & talk   |
| 54 | Brief introduction of TCP/IP   | Chalk & talk   |
| 55 | Firewall   | NPTTEL VIDEO   |
| 56 | Why Do We Need Firewalls?  |                |
| 57 | IP Security  | PPT            |
| 58 | Components of IP Security  |                |
| 59 | Virtual Private Network (VPN)  | NPTTEL VIDEO   |
| 60 | Revision of Chapter 7  | Questionnaires |

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Text Book- 1(TB1 Cryptography & Network security; By: A. Kahate : TMH

Reference Book 1 (RB1): Cryptography & Network Security – Principals and Practices; By: W.Stallings, Prentice Hall.

SUBJECT FACULTY

H.O.D

DEAN (ACADEMIC)

PRINCIPAL

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## Lesson Plan

|                                       |  |  |
|---------------------------------------|--|--|
| <b>Name</b>                           | SABYASACHI<br>SARANGI  | Total Hrs planned:60<br>Total Hrs per week: 04 |
| <b>Designation</b>                    | PTGF   | Session: 2022-23                               |
| <b>Subject: Code/Name</b>             | Th.2   | <b>Internet of Things</b>                      |
| <b>Semester/Programme /Department</b> | 6 <sup>th</sup> Sem / Diploma/ Information Technology  |  |
| <b>Course Objective</b>               | Know what IoT is Know Physical and Logical design of IoT<br>Understand the other Technology associated with IoT Know the areas of applications of IoT Understand the concept of IIoT<br>Know the working with Arduino and Raspberry Pi |  |

| Sl.No | Detail Description of Topics/Subtopics                   | Mode of Lecture             |
|-------|--|-----------------------------|
| 1     | CHAPTER-1 Introduction to Internet of Things             | Chalk & talk                |
| 2     | Characteristics of IoT                                   | Chalk & talk                |
| 3     | Applications of IoT & IoT Categories                     | Chalk & talk                |
| 4     | IoT Enablers and connectivity layers                     | PPT                         |
| 5     | Baseline Technologies , oT components and implementation | NPTEL VIDEO                 |
| 6     | Revision of Chapter 1                                    | Questionnaires & Class Test |
| 7     | <b>Chapter2:</b> IOT Networking                          | Chalk & talk                |
| 8     | Terminologies & Gateway Prefix allotment                 | NPTEL VIDEO                 |
| 9     | Impact of mobility on Addressing                         | NPTEL VIDEO                 |
| 10    | Multihoming , Deviation from regular Web                 | Chalk & talk                |
| 11    | IoT identification and Data protocols                    | NPTEL VIDEO                 |
| 12    | Revision of Chapter 2                                    | Questionnaires & Class Test |
| 13    | <b>Chapter 3:</b> Connectivity Technologies              | Chalk & talk                |
| 14    | Introduction & IEEE 802.15.4                             | Chalk & talk                |
| 15    | ZigBee   | Chalk & talk                |

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|----|--|-----------------------------|
| 16 | 6LoWPAN & RFID                             | Chalk & talk                |
| 17 | HART and wireless HART                     | Chalk & talk                |
| 18 | NFC  | NPTEL VIDEO                 |
| 19 | Bluetooth & Z wave                         | Chalk & talk                |
| 20 | ISA100.11.A                                | NPTEL VIDEO                 |
| 21 | Revision of Chapter 3                      | Questionnaires & Class Test |
| 22 | <b>Chapter 4:</b> Wireless Sensor Networks | Chalk & talk                |
| 23 | Introduction                               | PPT                         |
| 24 | Components of a sensor node                | Chalk & talk                |
| 25 | Modes of Detectio                          | Chalk & talk                |
| 26 | Challenges in WSN & Sensor Web             | NPTEL VIDEO                 |
| 27 | Revision of Chapter 4                      | Questionnaires & Class Test |

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|----|--|-----------------------------|
| 28 | <b>Chapter 5:</b> M2M Communication              | Chalk & talk                |
| 29 | M2M communication & M2M Ecosystem                | PPT                         |
| 30 | M2M service Platform & Interoperability          | NPTEL VIDEO                 |
| 31 | Revision of Chapter 5                            | Questionnaires & Class Test |
| 32 | <b>Chapter 6 :</b> . Programming with Arduino    | Chalk & talk                |
| 33 | Introduction & Features of Arduino               | Chalk & talk                |
| 34 |  | NPTEL VIDEO                 |
| 35 | Components of Arduino Board                      | Chalk & talk                |
| 36 | Arduino IDE & Case Studies                       | PPT                         |
| 37 | Revision of Chapter 6                            | Questionnaires & Class Test |
| 38 | <b>Chapter 7 :</b> Programming with Raspberry Pi | Chalk & talk                |
| 39 | Architecture and Pin Configuration               | Chalk & talk                |
| 40 | Case studies                                     | NPTEL VIDEO                 |
| 41 | Implementation of IoT with Raspberry Pi          | PPT                         |
| 42 | Revision of Chapter 7                            | Questionnaires & Class Test |
| 43 | <b>Chapter 8 :</b> Software defined Networking   | Chalk & talk                |
| 44 | Limitation of current network                    | Chalk & talk                |
| 45 | Origin of SDN & SDN Architecture                 | Chalk & talk                |
| 46 | Rule Placement, Open flow Protocol               | Chalk & talk                |
| 47 | Security in SDN ,Integrating SDN in IoT          | Chalk & talk                |
| 48 | Revision of Chapter 8                            | Questionnaires & Class Test |
| 49 | <b>Chapter 9:</b> Smart Homes                    | Chalk & talk                |
| 50 | Origin and example of Smart Home Technologies    | Chalk & talk                |
| 51 | Smart Home Implementation                        | Chalk & talk                |
| 52 | Home Area Networks(HAN                           | Chalk & talk                |
| 53 | Smart Home benefits and issues                   | Chalk & talk                |
| 54 | Revision of Chapter 9                            | Questionnaires & Class Test |
| 55 | <b>Chapter 10:</b> Smart Cities                  | Chalk & talk                |
| 56 | Characteristics of Smart Cities                  | Chalk & talk                |
| 57 | Smart city Frameworks                            | NPTEL VIDEO                 |
| 58 | Challenges in Smart cities,                      | NPTEL VIDEO                 |
| 59 | Energy Management in Smart cities                | Chalk & talk                |
| 60 | Revision of Chapter10                            | Questionnaires & Class Test |

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Books Recommended :

- 01 Jeeva Jose Internet of Things Khanna Books

02 Arsheep Bhaga, Vijay Madiseti Internet of Things A Hands-on approach University press

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ACADEMIC COORDINATOR

PRINCIPAL

# JES, JHARSUGUDA

## Lesson Plan

|                                   |  |  |
|-----------------------------------|--|--|
| Name                              | SABYASACHI SARANGI   | Total Hrs planned:60<br>Total Hrs per week: 04 |
| Designation                       | PTGF   | Pre requisite :                                |
| Subject: Code/Name                | TH 3   | Cloud computing                                |
|                                   |  | Session 2022 - 2023                            |
| Semester/Programme/<br>Department | 6 <sup>th</sup> Sem / Diploma/ Information Technology  |  |
| Course Objective                  | <p>Understand the basic concepts of cloud and cloud architecture.<br/>Learn about different cloud computing technology.</p> <ul style="list-style-type: none"><li>• Learn about the service levels for cloud applications.</li><li>• Provides a practical exposure to professionals intending to work in cloud computing environment. Understand the map reduce model and its application</li><li>• Learn about basic concepts of software productivity in a cloud</li><li>• Understand web services and platforms</li></ul> |  |

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| Sl.No | Detail Description of Topics/Subtopics                                  | Mode of Lecture             |
|-------|---|-----------------------------|
| 1     | <b>Chapter1: “Introduction To Cloud Computing” Cloud Computing</b>      | Chalk & talk                |
| 2     | Historical development, Vision of Cloud Computing                       | Chalk & talk                |
| 3     | Characteristics of Cloud computing                                      | Chalk & talk                |
| 4     | Cloud computing Reference model, Cloud computing environment            | PPT                         |
| 5     | Cloud computing environment   | NPTEL VIDEO                 |
| 6     | Cloud Service requirements, Cloud and Dynamic Infrastructure            | Questionnaires & Class Test |
| 7     | Cloud Adoption, Cloud applications                                      | NPTEL VIDEO                 |
| 8     | Revision of Chapter 1   | NPTEL VIDEO                 |
| 9     | <b>Chapter2: “Cloud Computing Architecture” Cloud Computing</b>         | Chalk & talk                |
| 10    | Introduction Cloud Computing Architecture                               | NPTEL VIDEO                 |
| 11    | Cloud Reference Model   | Questionnaires & Class Test |
| 12    | Types of Clouds, Cloud Interoperability and standards                   | Chalk & talk                |
| 13    | Cloud computing Interoperability use cases                              | PPT                         |
| 14    | Role of standards in Cloud Computing environment, Revision of Chapter 2 | Chalk & talk                |
| 15    | <b>Chapter3: “Scalability and Fault Tolerance” Cloud Computing</b>      | Chalk & talk                |
| 16    | Introduction Scalability and Fault Tolerance                            | NPTEL VIDEO                 |
| 17    | Scalability and Fault Tolerance, Cloud solutions                        | Chalk & talk                |
| 18    | Cloud Ecosystem, Cloud Business process management                      | NPTEL VIDEO                 |
| 19    | Portability and Interoperability  | Questionnaires & Class Test |
| 20    | Cloud Service management, Cloud Offerings                               | Chalk & talk<br>PPT         |
| 21    | Testing under Control, Cloud service Controls                           | Chalk & talk                |

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|----|--------------------------------|-------------|
| 22 | Virtual desktop Infrastructure | NPTEL VIDEO |
| 23 | Revision of Chapter 3          | NPTEL VIDEO |

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|----|--|-----------------------------|
| 24 | <b>Chapter 4:</b> Cloud Management and Virtualisation Technology – Cloud Computing | Chalk & talk                |
| 25 | Create a virtualised Architecture  | PPT                         |
| 26 | Data Centre  | Chalk & talk                |
| 27 | Resilience   | NPTEL VIDEO                 |
| 28 | Agility, Cisco Data Centre Network architecture, Storage                           | Chalk & talk                |
| 30 | Provisioning, Asset Management, Concept of Map Reduce                              | Chalk & talk                |
| 31 | Cloud Governance, Load Balancing   | NPTEL VIDEO                 |
| 32 | High Availability, Disaster Recovery, Revision of Chapter 4                        | NPTEL VIDEO                 |
| 33 | <b>Chapter 5:</b> Virtualisation – Cloud Computing                                 | Questionnaires & Class Test |
| 34 | Virtualisation, Bet work Virtualisation  | Chalk & talk                |
| 35 | Desktop and Application Virtualisation   | NPTEL VIDEO                 |
| 36 | Desktop as a service, Local desktop Virtualisation                                 | Chalk & talk                |
| 37 | Virtualisation benefits  | Chalk & talk                |
| 38 | Server Virtualisation  | Questionnaires & Class Test |
| 39 | Block and File level Storage Virtualisation, Virtual Machine Monitor               | Chalk & talk                |
| 40 | Infrastructure Requirements  | NPTEL VIDEO                 |

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|----|---|-----------------------------|
| 41 | VLAN and VSAN, Revision of Chapter 5  | PPT                         |
| 42 | <b>Chapter 6:</b> Cloud Security – Cloud Computing                                | NPTEL VIDEO                 |
| 43 | Cloud Security Fundamentals, Cloud security services , Design Principles          | NPTEL VIDEO                 |
| 44 | Secure Cloud software requirements  | Questionnaires & Class Test |
| 45 | Policy Implementation, Cloud Computing Security Challenges, Revision of Chapter 6 | Chalk & talk                |
| 46 | <b>Chapter 7:</b> “Cloud Computing Security Architecture” – Cloud Computing       | Chalk & talk                |
| 47 | Architectural Considerations, Information Classification                          | Chalk & talk                |
| 48 | Virtual Private Networks, Public Key and Encryption Key management                | Chalk & talk                |
| 49 | Digital certificates, Key management  | Chalk & talk                |
| 50 | Memory Cards, Implementing Identity Management                                    | Chalk & talk                |
| 51 | Controls and Autonomic System   | Questionnaires & Class Test |
| 52 | <b>Chapter 8:</b> “Market Based Management of Clouds” – Cloud Computing           | Chalk & talk                |
| 53 | Cloud Information security vendors, Cloud Federation                              | Chalk & talk                |
| 54 | Characterization, Cloud Federation stack  | Chalk & talk                |
| 55 | Third Party Cloud service, Case study   | NPTEL VIDEO                 |
| 56 | Case study  | NPTEL VIDEO                 |
| 57 | Revision of Chapter 8   | Questionnaires              |
| 58 | <b>Chapter 9:</b> “ Hadoop ” – Cloud Computing with Introduction                  | Chalk & talk                |
| 59 | Data Source, Data storage and Analysis  | NPTEL VIDEO                 |
| 60 | Comparison with other system, Revision of Chapter 9                               | Questionnaires & Class Test |

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## BOOK

1. Cloud Computing; By : Pankaj Sharma, Katson Books
2. Cloud Computing : Dr. U.S. Pandey , Dr. KavitaChoudhary , S.Chand
3. Fundamentals of Cloud Computing : PrasantkumarPattnaik, ManasRanjanKabat , Souvik Pal, Vikas

SUBJECT FACULTY

H.O.D

ACADEMIC COORDINATOR

PRINCIPAL

# INFORMATION TECHNOLOGY DEPARTMENT

| LESSON PLAN                                 |                         |
|---|-------------------------|
| JHARSUGUDA ENGINEERING SCHOOL, JHARSUGUDA   |                         |
| Name of the Faculty: Mrs. Barsha Rani Patel | Academic Year: 2022-23  |
| Course No.: Th.1                            | Course Name: E-Commerce |
| Program: Diploma                            | Branch: IT              |
| Year / Semester : III/ VI                   | Section:                |

| Sl. No. | Period /Class | Time (min) | Unit | Topic to be covered                                  | Teaching method |
|---------|---------------|------------|------|--|-----------------|
| 1.      | 1.            | 55         | 1    | Introduction to E-commerce                           | Chalk & talk    |
| 2.      | 2.            | 55         | 1    | What is E-commerce                                   | Chalk & talk    |
| 3.      | 3.            | 55         | 1    | E-Business   | Chalk & talk    |
| 4.      | 4.            | 55         | 1    | Categories of E-Commerce Applications                | Chalk & talk    |
| 5.      | 5.            | 55         | 1    | Global Training Environment & Adoption of E-commerce | Chalk & talk    |
| 6.      | 6.            | 55         | 1    | Comparison Between Traditional and E-commerce        | Chalk & talk    |
| 7.      | 7.            | 55         | 1    | Advantage and Disadvantage                           | Chalk & talk    |
| 8.      | 8.            | 55         | 1    | Revision Chapter -1                                  | Questioner      |
| 9.      | 9.            | 55         | 2    | Business Model of E-Commerce                         | Chalk & talk    |
| 10.     | 10.           | 55         | 2    | B2C, B2B   | Chalk & talk    |
| 11.     | 11.           | 55         | 2    | Difference between B2C, B2C and C2C                  | Chalk & talk    |
| 12.     | 12.           | 55         | 2    | Revision Chapter-2                                   | Questioner      |
| 13.     | 13.           | 55         | 3    | B2B e-Commerce and EDI                               | Chalk & talk    |
| 14.     | 14.           | 55         | 3    | Need for B2B   | Chalk & talk    |
| 15.     | 15.           | 55         | 3    | EDI Standards  | Chalk & talk    |
| 16.     | 16.           | 55         | 3    | Paperless Transaction                                | Chalk & talk    |
| 17.     | 17.           | 55         | 3    | Data Standards use in EDI & Cost of EDI              | Chalk & talk    |
| 18.     | 18.           | 55         | 3    | Reasons for Slow acceptability                       | Chalk & talk    |
| 19.     | 19.           | 55         | 3    | Electronic Fund Transfer                             | Chalk & talk    |

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|-----|-----|----|---|---|--------------|
| 20. | 20. | 55 | 3 | XML and its Application                                     | Chalk & talk |
| 21. | 21. | 55 | 3 | Comparison of HTML and XML                                  | Chalk & talk |
| 22. | 22. | 55 | 3 | Advantage of XML as a Technology                            | Chalk & talk |
| 23. | 23. | 55 | 3 | Revision Chapter-3  | Questioner   |
| 24. | 24. | 55 | 4 | Business Applications of E-Commerce                         | Chalk & talk |
| 25. | 25. | 55 | 4 | Trade Cycle, Supply Chain                                   | Chalk & talk |
| 26. | 26. | 55 | 4 | E-Procurement & Implementing                                | Chalk & talk |
| 27. | 27. | 55 | 4 | Competitive Advantage                                       | Chalk & talk |
| 28. | 28. | 55 | 4 | E-Commerce Application in Wholesale, Manufacturing & Retail | Chalk & talk |
| 29. | 29. | 55 | 4 | E-Commerce Application in Service Sector                    | Chalk & talk |
| 30. | 30. | 55 | 4 | Revision Chapter-4  | Questioner   |
| 31. | 31. | 55 | 5 | E-Commerce in Technology                                    | Chalk & talk |
| 32. | 32. | 55 | 5 | IT infrastructure   | Chalk & talk |
| 33. | 33. | 55 | 5 | Internet, Intranet, Extranet                                | Chalk & talk |
| 34. | 34. | 55 | 5 | Middleware  | Chalk & talk |
| 35. | 35. | 55 | 5 | VPN, Firewall, Cryptography                                 | Chalk & talk |
| 36. | 36. | 55 | 5 | Digital Signature, Envelope, Certificate                    | Chalk & talk |
| 37. | 37. | 55 | 5 | Revision Chapter-5  | Questioner   |
| 38. | 38. | 55 | 6 | Electronic Payment System                                   | Chalk & talk |
| 39. | 39. | 55 | 6 | Electronic Payment Mechanism                                | Chalk & talk |
| 40. | 40. | 55 | 6 | Type of Payment System                                      | Chalk & talk |
| 41. | 41. | 55 | 6 | Risk Associated with Electronic Payment                     | Chalk & talk |
| 42. | 42. | 55 | 6 | Risk Management Option                                      | Chalk & talk |
| 43. | 43. | 55 | 6 | Payment Gateway   | Chalk & talk |
| 44. | 44. | 55 | 6 | Issue of Electronic Payment Technology                      | Chalk & talk |

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|     |     |    |   |   |              |
|-----|-----|----|---|---|--------------|
| 45. | 45. | 55 | 6 | Recommendation                          | Chalk & talk |
| 46. | 46. | 55 | 6 | Internet Banking & Security Requirement | Chalk & talk |
| 47. | 47. | 55 | 6 | Secure Socket Layer                     | Chalk & talk |
| 48. | 48. | 55 | 6 | Biometric                               | Chalk & talk |
| 49. | 49. | 55 | 6 | Revision Chapter-6                      | Questioner   |
| 50. | 50. | 55 | 7 | Security Issues in E-Commerce           | Chalk & talk |
| 51. | 51. | 55 | 7 | E-Commerce Security Issue               | Chalk & talk |
| 52. | 52. | 55 | 7 | Risk involved in E-Commerce             | Chalk & talk |
| 53. | 53. | 55 | 7 | Protecting E-Commerce System            | Chalk & talk |
| 54. | 54. | 55 | 7 | Common E-Commerce Security Tools        | Chalk & talk |
| 55. | 55. | 55 | 7 | Client Server Network Security          | Chalk & talk |
| 56. | 56. | 55 | 7 | Data and Message Security               | Chalk & talk |
| 57. | 57. | 55 | 7 | Revision Chapter-7                      | Questioner   |
| 58. | 58. | 55 | 8 | Current Trends in Electronic world      | Chalk & talk |
| 59. | 59. | 55 | 8 | E-waste, Surveillance, governance, care | Chalk & talk |
| 60. | 60. | 55 | 8 | Problems & Revision Chapter-8           | Chalk & talk |

| Text Book<br>(TB) | Name of the Book   |
|-------------------|--|
| 1                 | E-commerce and Mobile Commerce Technology By: U.S Pandey and S Sukla (S.Chand) |