

1. Title Slide

- Day 3: Digital Technologies and Tools
- Units III & IV
- CDOE Distance Education | PCP Session

2. ReCON – Concept

- ReCON: Retrospective Conversion
- Definition: Converting existing manual catalogue records to machine-readable format
- Source: Card catalogues, ledgers, printed lists
- Result: Digital records for online catalogue

3. ReCON – Function

- Process: Data extraction from cards
- Formatting: Convert to standard schemas (MARC21)
- Uploading: Import into ILMS database
- Validation: Check accuracy and completeness

4. ReCON – Importance (Access)

- Makes legacy collections searchable: Old books now in OPAC
- Unified catalogue: All materials in one system
- User discovery: Patrons find historical materials
- Collection visibility: Hidden collections become accessible

5. ReCON – Importance (Operations)

- Prerequisite for automation: Must have digital records first
- Eliminates card catalogue: No more physical maintenance
- Space saving: Remove card catalogue cabinets
- Efficiency: Faster than creating new records from scratch

6. ReCON – Process Steps

- Inventory: Count and organize card catalogue
- Extraction: Read and interpret card information
- Conversion: Format into MARC21 or other standard
- Quality control: Verify accuracy against physical item
- Upload: Import into ILS database

7. UNICODE – Concept

- UNICODE: Universal character encoding standard
- Definition: Assigns unique number to every character in every language
- Coverage: 159 scripts, 149,000+ characters
- Version: Unicode 15.1 (2023)
- Goal: Universal text representation

8. UNICODE – Function

- Character encoding: Numbers represent characters
- Consistent representation: Same character = same number everywhere
- Cross-platform: Works on Windows, Mac, Linux, mobile
- Backward compatible: Includes ASCII

9. UNICODE – Importance (Multilingual)

- Regional languages: Hindi, Tamil, Bengali, Telugu, etc.
- Vernacular cataloguing: Record titles in original scripts
- User interface: Display in local languages
- Search capability: Find materials in any language

10. UNICODE – Library Context

- Indian libraries: Essential for multilingual collections
- Shodhganga: Indian theses repository uses Unicode
- INFLIBNET: Promotes Unicode for Indian languages
- Digital libraries: Support diverse language content

11. UNICODE – Benefits

- Solves garbled text: No more ?????? or boxes
- Data exchange: Share records between systems
- Long-term preservation: Future-proof encoding
- Global interoperability: Works with international systems
- Standards compliance: MARC21, Dublin Core, MODS

12. Digital Libraries – Concept

- Definition: Organized collection of digital content with associated services
- Components: Digital objects, metadata, access systems
- Characteristics: Born-digital or digitized, networked access
- Services: Access, discovery, preservation

13. Digital Libraries – Purpose

- Access: Provide 24/7 remote access to collections
- Preservation: Protect fragile materials from deterioration
- Space saving: Reduce need for physical storage
- Sharing: Enable resource sharing across institutions
- Discovery: Enhanced search and retrieval

14. Digital Libraries – Characteristics (Access)

- 24/7 availability: Anytime, anywhere access
- Remote access: No need to visit physical library
- Multi-user: Multiple simultaneous users
- Device independent: Computers, tablets, phones

15. Digital Libraries – Characteristics (Content)

- Multimedia: Text, images, audio, video
- Born-digital: Created in digital format
- Digitized: Converted from physical format
- Interactive: Hyperlinks, annotations, multimedia

16. Digital Libraries – Characteristics (Technology)

- Metadata: Descriptive, structural, administrative
- Search: Full-text, fielded, faceted
- Standards: OAI-PMH, Dublin Core, MARC
- Preservation: Long-term digital preservation

17. Digital Libraries – Benefits (Users)

- Convenience: Access from home, office, anywhere
- Speed: Instant retrieval vs. physical browsing
- Searchability: Find specific information quickly
- Accessibility: Assistive technology compatibility

18. Digital Libraries – Benefits (Libraries)

- Space: No physical storage constraints
- Preservation: Protect rare and fragile materials
- Cost: Reduced binding, shelving, maintenance
- Reach: Serve users beyond physical location
- Collaboration: Share resources with other libraries

19. Digital Libraries – Benefits (Society)

- Democratization: Information access for all
- Education: Support lifelong learning
- Research: Enable new forms of scholarship
- Culture: Preserve and share cultural heritage
- Innovation: Data mining, text analysis

20. Digital Libraries – Examples (International)

- Project Gutenberg: Free e-books (60,000+)
- Internet Archive: Web pages, books, media (petabytes)
- HathiTrust: Academic library partnership (17M+ volumes)
- Europeana: European cultural heritage
- DPLA: Digital Public Library of America

21. Digital Libraries – Examples (India)

- National Digital Library of India (NDLI): Ministry of Education initiative
- Shodhganga: Indian theses repository (INFLIBNET)
- ShodhGangotri: Research proposals repository
- IndCat: Union catalogue of Indian libraries
- Digital Library of India: Digitized books and manuscripts

22. Library 2.0 – Concept

- Definition: Application of Web 2.0 technologies to library services
- Web 2.0: Social media, user-generated content, collaboration
- Philosophy: User-centered, participatory, interactive
- Shift: From passive consumption to active participation

23. Library 2.0 – Characteristics

- User participation: Comments, reviews, tagging, ratings
- Social features: Sharing, recommendations, networking
- Customization: Personalized services, user preferences
- Collaboration: User-generated content, crowdsourcing
- Constant change: Beta services, rapid updates

24. Library 2.0 – Applications (Communication)

- Social media: Facebook, Twitter, Instagram, YouTube
- Blogs: Library news, book reviews, announcements
- RSS feeds: New arrivals, events, updates
- Podcasts: Author interviews, book talks
- Newsletters: Email subscriptions

25. Library 2.0 – Applications (Participation)

- User reviews: Rate and review books in OPAC
- Tagging: User-assigned keywords for discovery
- Recommendations: If you liked this, try...
- Comments: Feedback on blog posts, events
- Crowdsourcing: Transcription, tagging of digital collections

26. Library 2.0 – Shift

- Traditional: Library as place of information
- Library 2.0: Library as platform for participation
- User role: From consumer to co-creator
- Service model: From come to us to meet users where they are
- Philosophy: Continuous change, user engagement

27. Web 3.0 – Concept

- Definition: Next generation of web—semantic, intelligent, decentralized
- Also called: Semantic Web, Decentralized Web
- Technologies: AI, blockchain, IoT, linked data
- Status: Emerging, partially implemented
- Vision: Machines understand and interpret data

28. Web 3.0 – Characteristics

- Semantic: Machine-readable, context-aware
- Intelligent: AI-powered personalization
- Decentralized: Blockchain-based, no central control
- Interoperable: Linked data, knowledge graphs
- Immersive: VR, AR, mixed reality

29. Web 3.0 – Library Relevance

- Smart recommendations: AI suggests relevant resources
- Linked data: BIBFRAME, RDF for library catalogues
- Chatbots: Virtual reference assistants
- Blockchain: Rights management, provenance tracking
- VR/AR: Virtual library tours, immersive exhibits

30. Break / Transition

- End of Hour 1
- Next: ASNs, Barcodes, QR Codes, Screen Readers

31. ASN – Concept

- ASN: Academic Social Network
- Definition: Online platform connecting researchers, academics, students
- Purpose: Share research, collaborate, track citations
- Characteristics: Professional profiles, publication lists

32. ASN – Purpose

- Dissemination: Share research papers, preprints
- Networking: Connect with peers globally
- Collaboration: Find research partners
- Metrics: Track citations, h-index, altmetrics
- Discovery: Find open access versions of papers

33. ASN – Benefits (Researchers)

- Visibility: Showcase research outputs
- Impact: Track downloads, views, citations
- Networking: Connect with global researchers
- Collaboration: Find partners for projects
- Career: Demonstrate research productivity

34. ASN – Examples (General)

- ResearchGate: Largest academic network (20M+ researchers)
- Academia.edu: 150M+ registered users
- Mendeley: Reference manager + network (Elsevier)
- Google Scholar Profiles: Citation tracking
- ORCID: Persistent researcher identifier

35. ASN – Examples (Subject-Specific)

- IEEE Xplore: Engineering and technology
- PubMed: Biomedical research
- SSRN: Social sciences, economics, law
- arXiv: Physics, mathematics, computer science
- bioRxiv: Biology preprints

36. ASN – Library Context

- Research support: Guide faculty on creating profiles
- Institutional repositories: Integration with ASN profiles
- Metrics support: Bibliometric analysis assistance
- Open access: Promote green OA deposits
- Training: Information literacy for researchers

37. Barcodes – Concept

- Barcode: Optical machine-readable representation of data
- Types: 1D (linear), 2D (QR codes)
- Library use: Item identification, circulation
- Standards: Code 39, Code 128, EAN-13
- Components: Bars (dark) and spaces (light)

38. Barcodes – Applications (Circulation)

- Check-out: Scan item and patron barcode
- Check-in: Scan item on return
- Renewal: Extend loan period
- Holds: Place and fulfill requests
- Fines: Calculate overdue fees automatically

39. Barcodes – Applications (Management)

- Inventory: Scan shelves to verify collection
- Location tracking: Find missing items
- Weeding: Identify items for withdrawal
- Security: Trigger alarms for unchecked items
- Statistics: Track circulation patterns

40. Barcodes – Benefits

- Speed: Transactions in seconds
- Accuracy: Eliminate manual typing errors
- Efficiency: Handle high volume circulation
- Cost-effective: Inexpensive to implement
- Reliability: Proven technology

41. QR Codes – Concept

- QR: Quick Response code
- Definition: Two-dimensional barcode storing more data
- Capacity: Up to 4,296 alphanumeric characters
- Features: Error correction, fast readability
- Readability: Smartphone cameras

42. QR Codes – Applications (Access)

- OPAC links: Direct to catalogue records
- E-books: Link to digital versions
- Mobile websites: Quick access to library mobile site
- WiFi access: Network name and password
- App downloads: Link to library app

43. QR Codes – Applications (Information)

- Shelf guidance: Location maps, call number help
- Exhibits: Additional content, multimedia
- Events: Registration, details, calendar
- Tutorials: How-to videos, guides
- Feedback: Survey links, suggestion forms

44. QR Codes – Benefits

- Bridge physical-digital: Connect print to online
- No typing: Instant access without URL entry
- Mobile-friendly: Designed for smartphones
- Cost-free: Free to generate and print
- Trackable: Analytics on scans

45. Screen Readers – Concept

- Definition: Software that converts digital text to speech or braille
- Function: Reads screen content aloud
- Users: Visually impaired, print-disabled, learning disabilities
- Output: Speech synthesis or refreshable braille display
- Purpose: Accessibility and inclusion

46. Screen Readers – How They Work

- Text extraction: Identify text on screen
- Speech synthesis: Convert text to spoken words
- Navigation: Keyboard shortcuts, skip links
- Formatting: Announce headings, lists, tables
- Applications: Browsers, documents, email, OPACs

47. Screen Readers – Library Applications

- Accessible OPAC: Screen reader compatible catalogue
- E-books: Accessible digital books
- PDFs: Tagged, accessible documents
- Websites: WCAG compliant library websites
- Databases: Accessible search interfaces

48. Screen Readers – Examples

- JAWS: Job Access With Speech (Windows, commercial, \$95/year)
- NVDA: NonVisual Desktop Access (Windows, free, open-source)
- VoiceOver: Built into macOS, iOS (free)
- TalkBack: Built into Android (free)
- Orca: Linux screen reader (free, open-source)

49. Accessibility – Standards and Law

- WCAG: Web Content Accessibility Guidelines (W3C)
- Section 508: US federal accessibility standard
- RPWD Act 2016: Rights of Persons with Disabilities Act (India)
- ADA: Americans with Disabilities Act
- Compliance: Legal and ethical obligation

50. Course Recap – Unit I

- IT fundamentals: Hardware, software, data, people, processes
- Hardware: CPU (ALU, CU, Registers), memory (RAM, ROM, Cache)
- Software: System (OS) vs. Application
- Proprietary vs. Open-source: Cost, support, customization
- OS: Windows (desktop) vs. Linux (server)

51. Course Recap – Unit II

- Web technologies: HTML, WWW, browsers, email, WiFi
- Search engines: Crawling, indexing, ranking
- Networks: PAN, LAN, MAN, WAN
- Topologies: Bus, Star, Ring, Mesh
- Protocols: HTTP/HTTPS, TCP/IP, DNS, URL, DOI

52. Course Recap – Unit III

- Library automation: Definition, need, benefits
- Implementation: Turnkey, In-house, Open-source, Cloud
- ILMs: Concept, modules, features
- Librarika: Cloud-based, free, small libraries
- ReCON: Retrospective conversion of card catalogues

53. Course Recap – Unit IV

- Digital libraries: Concept, characteristics, benefits, examples
- Library 2.0: User participation, social media
- Web 3.0: Semantic, intelligent, decentralized
- ASN: ResearchGate, Academia.edu, Mendeley
- Barcodes/QR: Item tracking, mobile access

54. Integration – How It All Connects

- Foundation: IT infrastructure (hardware, software, networks)
- Access: Web technologies enable remote services
- Management: Automation streamlines operations
- Content: Digital libraries preserve and provide access
- Engagement: Library 2.0, ASNs connect with users

55. Exam Preparation – Key Definitions

- IT: Use of computers to create, process, store, exchange data
- CPU: Central Processing Unit (ALU + CU + Registers)
- RAM/ROM: Volatile vs. non-volatile memory
- OSS: Source code freely available
- ILMS: Integrated Library Management System

56. Exam Preparation – Key Comparisons

- Proprietary vs. Open-source: Cost, support, customization
- Windows vs. Linux: Desktop vs. server, cost, security
- PAN/LAN/MAN/WAN: Range and scope
- Migration vs. Emulation: File vs. environment
- Barcode vs. QR: 1D vs. 2D, capacity, use

57. Exam Preparation – Library Context

- Always connect concepts to library applications
- Examples: Koha, DSpace, Shodhganga, NDLI
- Benefits: Efficiency, access, preservation, inclusion
- Challenges: Cost, skills, infrastructure
- Trends: Cloud, mobile, AI, accessibility

58. Discussion – Future of Library Technology

- AI and machine learning: Smart recommendations, chatbots
- Blockchain: Rights management, provenance
- IoT: Smart libraries, RFID, sensors
- VR/AR: Immersive learning experiences
- Big data: Analytics, personalization

59. Thank You and Best Wishes

- End of 6-hour PCP program
- Best wishes for examinations
- Contact for further queries
- Stay updated with emerging technologies

60. End of Course

- Complete: All four units covered
- Next steps: Review slides, read suggested materials
- Assignment: Apply concepts to your local library
- Feedback: Please share your feedback