**CBCentra School Management System**

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1. Introduction

What is CBCentra?

CBCentra is Uganda's premier desktop school management system, purposebuilt for the CompetencyBased Curriculum (CBC). Developed with Python and featuring a modern Pyside6 interface and MySQL, CBCentra delivers the speed, reliability, and precision that Ugandan secondary schools need to excel in the CBC era.

**Purpose of This Document**

This documentation provides comprehensive guidance for administrators, teachers, and staff members who will be using CBCentra to manage:

* School operations
* Student data management
* CBC assessment processes

**Document Scope**

This guide covers:

* System overview and architecture
* Installation procedures
* User roles and permissions
* Core functionality
* Operational workflows

2. System Overview

The CBCentra Difference

CBCentra is not just another school management system—it's a CBC Control Center designed specifically for Uganda's educational landscape. Unlike generic solutions, CBCentra understands the unique requirements of CBC evaluation, Ugandan term structures, and the practical challenges schools face with inconsistent internet connectivity.

Core Design Principles

DesktopNative Architecture

* Offlinefirst functionality ensuring uninterrupted operations
* Highperformance data processing and rendering
* Local data security with encrypted storage
* Scalable from small schools to multicampus institutions
* Can connect to a local network (LAN)

CBCSpecific Integration

* Builtin alignment with NCDC curriculum standards
* Competency tracking and strand mapping capabilities
* Learning outcome assessment tools
* CBCcompliant reporting systems

Key Problem Solutions

The transition to CompetencyBased Curriculum brought specific challenges that CBCentra addresses:

| Challenge | CBCentra Solution |
| --- | --- |
| Complex Assessment Requirements | CBC demands tracking of multiple competencies, strands, and learning outcomes |
| Integrated Operations Need | Schools require seamless connection between academics, finance, and administration |
| Connectivity Reliability | Many areas lack consistent internet, requiring robust offline capabilities |
| RoleBased Access Control | Different users need tailored interfaces and permissions |
| Regulatory Compliance | Schools must align with NCDC standards while maintaining operational efficiency |

**3. System Architecture**

Modular Design Overview

CBCentra operates through five interconnected modules that function seamlessly together:

🎯 CBC Evaluation Engine

* Competency tracking and progress monitoring
* Strand mapping and learning outcome assessment
* Performance analytics and trend analysis
* CBCcompliant report generation

📚 Academic Management Module

* Examination scheduling and administration
* Marks entry with builtin validation
* Performance analysis across multiple metrics
* Flexible reporting for both traditional and CBC formats

💰 Financial Operations Module

* Comprehensive student fee management
* Payment tracking and automated receipts
* Account ledgers and balance monitoring
* Financial reporting and budget analytics

👥 Student Administration Module

* Complete student profile management
* Attendance tracking and automated reporting
* Parent/guardian communication systems
* Academic history and records maintenance

🔒 Security & Access Control

* Rolebased user management system
* Comprehensive audit trails and activity logging
* Advanced data encryption and backup protocols
* Permissionbased feature access control

**Technical Specifications**

**System Requirements**

Minimum Configuration:

* Operating System: Windows 10 or later
* RAM: 4GB minimum
* Storage: 2GB available space
* Display: 1366x768 resolution
* Network: Optional (for SMS and update features)

Recommended Configuration:

* Operating System: Windows 8 and above
* RAM: 8GB or higher
* Storage: SSD with 5GB+ available space
* Display: 1920x1080 or higher resolution
* Network: WiFi or ethernetLAN or WAN

**4. User Roles and Access Levels**

🔧 System Administrator

Primary Responsibilities:

* Complete system oversight and configuration
* User account management and role assignments
* Data backup and security maintenance
* System updates and maintenance scheduling

Access Permissions:

* Full system configuration access
* User management and role assignment
* System reports and analytics dashboard
* Data export and backup controls

🏫 School Administrator

Primary Responsibilities:

* Schoolwide operational oversight
* Strategic planning and decision support
* Stakeholder reporting and communication
* Policy implementation and monitoring

Access Permissions:

* Comprehensive reporting and analytics
* Student and staff data overview
* Financial summaries and trends
* Academic performance monitoring

👨‍🏫 Academic Staff (Teachers)

Primary Responsibilities:

* Student assessment and grade entry
* Attendance tracking and monitoring
* Parent communication and updates
* Classroomspecific reporting

Access Permissions:

* Assigned class and subject data
* Marks entry and assessment tools
* Student progress tracking
* Basic reporting functions

💼 Finance Officer

Primary Responsibilities:

* Fee collection and payment processing
* Financial record maintenance
* Account reconciliation and reporting
* Budget tracking and analysis

Access Permissions:

* Student financial records
* Payment processing tools
* Financial reporting modules
* Account management features

📝 Data Entry Clerk

Primary Responsibilities:

* Student data entry and maintenance
* Document processing and filing
* Basic administrative support
* Data verification and updates

Access Permissions:

* Student information entry
* Basic data modification rights
* Limited reporting access
* Assigned administrative functions

5. Getting Started

Initial Setup Process

Step 1: System installation and configuration  
Step 2: Schoolspecific parameter setup  
Step 3: User account creation and role assignment  
Step 4: Data migration (if applicable)  
Step 5: Staff training and orientation

Daily Operations Workflow

Morning Setup:

1. System login and role verification
2. Data entry and updates
3. Realtime monitoring and alerts

End of Day: 4. Report generation and distribution 5. System backup and maintenance

Support and Training

* Comprehensive user training programs
* Ongoing technical support
* Regular system updates and enhancements
* User documentation and resources

6. Benefits and Expected Outcomes

🏛️ Institutional Benefits

* Streamlined operations and reduced administrative burden
* Enhanced data accuracy and regulatory compliance
* Improved communication between stakeholders
* Costeffective solution with onetime licensing

📖 Educational Benefits

* Better tracking of student competency development
* Improved assessment accuracy and reporting
* Enhanced parentschool communication
* Datadriven decision making for improved outcomes

⚡ Operational Benefits

* Reduced manual processes and paperwork
* Automated calculations and report generation
* Reliable offline functionality
* Scalable solution for institutional growth

Document Information

| Field | Details |
| --- | --- |
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Note: This document is proprietary to CBCentra and intended for authorized users only.

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**User Management Form Guide**

**Purpose: Manage system users, roles, permissions, and account status**

**Step-by-step Instructions:**

* Adding a New User
  + Navigate to: Dashboard → User Management tab
  + Fill in required fields:
* Username (must be unique)
* Full Name
* Role (Admin, Headteacher, Teacher, Finance, Subject Head, Staff)
* Password (min. 8 characters)
* Confirm Password
  + Optional: Link to existing teacher record
  + Click: "Add User" button (green)

**# 2. Editing Existing User**

* 1. Select user from the table by clicking on their row
  2. Modify fields as needed (username, name, role)
  3. Click: "Update" button (blue)

**# 3. Resetting Password**

* 1. Select user from the table
  2. Enter new password in Password field
  3. Reenter password in Confirm Password field
  4. Click: "Reset Pwd" button (orange)

**# 4. Account Management**

1. Deactivate: Temporarily disable user access (red button)
2. Reactivate: Restore access to deactivated user (light blue button)
3. Unlock Account: If user is locked due to failed login attempts (info button)
4. Delete: Permanently remove user (dark red button use with caution!)

**# 5. Searching Users**

* 1. Use search box in topright of table
  2. Type username or full name
  3. Press Enter or click "Search"

**##Login Logs Monitoring Guide**

**Purpose: Monitor user login activity and security events**

**Access: Dashboard → Reports tab → Login Activity subtab**

# 1. **Viewing Login Activity**

Table shows: Timestamp, Username, Status (Success/Failed/Locked), IP Address

Color coding:

✅ Green = Successful login

❌ Red = Failed attempt

🔒 Orange = Account locked

**# 2. Filtering Logs**

1. Date Range: Use From/To date pickers

2. Status Filter: Select from dropdown (All, Success, Failed, Locked)

3. User Filter: Enter specific username

4. Click: "Apply Filters"

**# 3. Statistics Overview**

1. Total Logins: All login attempts
2. Successful: Completed logins
3. Failed: Incorrect password/username
4. Locked: Accounts temporarily disabled

**# 4. Exporting Data**

* 1. Click: "Export to CSV"
  2. Choose location to save file
  3. File includes: All visible filtered data

**# 5. Maintenance**

1. Delete Old Logs: Removes records older than 90 days (Admin only)
2. Refresh: Updates with latest data

**## 📊 Audit Trail Logs Guide**

**Purpose: Track all system changes and user actions**

**Access: Dashboard → Reports tab → Audit Trail subtab**

**# 1. Understanding Audit Events**

1. CREATE: New records added
2. UPDATE: Existing data modified
3. DELETE: Records removed
4. LOGIN/LOGOUT: User access events

**# 2. Filtering Audit Logs**

1. Date Range: Select timeframe
2. Action Type: Filter by operation type
3. Table: Filter by affected database table
4. User: Filter by specific username
5. Apply Filters to update view

**# 3. Reading Audit Entries**

1. Each record shows:
2. Timestamp: When action occurred
3. User: Who performed the action
4. Action: What was done (Create/Update/Delete)
5. Table: Which data was affected
6. Record ID: Specific item changed
7. Description: Details of the change
8. IP Address: Where action originated

**# 4. Statistics Overview**

1. Total Actions: All recorded events
2. CREATE Count: New items added
3. UPDATE Count: Modifications made
4. DELETE Count: Items removed

**# 5. Data Management**

1. Export: Save audit trail to CSV for reporting
2. Refresh: Load latest audit entries
3. Delete Old: Remove records older than 1 year (Admin only)

**## 🛡️ Security Best Practices**

**For Administrators:**

* 1. ***Regularly review Login Logs for suspicious activity***
  2. ***Monitor Audit Trail for unauthorized changes***
  3. ***Use strong passwords and enforce password policies***
  4. ***Deactivate unused accounts promptly***
  5. ***Limit admin privileges to necessary personnel only***

**For All Users:**

1. ***Never share your login credentials***
2. ***Report suspicious activity immediately***
3. ***Log out when leaving workstation***
4. ***Use strong, unique passwords***
5. ***Lock workstation when unattended***

**## 🆘 Troubleshooting Common Issues**

**Login Problems:**

* ***Check username/password spelling***
* ***Verify Caps Lock is off***
* ***Contact admin if account is locked***

**Permission Errors:**

* ***❌ "Access Denied" = Your role doesn't have permission***
* ***✅ Contact administrator for access requests***

**Data Not Loading:**

* ***🔄 Click "Refresh" button***
* ***📶 Check internet connection***
* ***🖥️ Restart application if persistent***

**Export Issues:**

* ***💾 Ensure you have write permissions to save location***
* ***📁 Check available disk space***

**## 📞 Support Contact**

**For technical assistance:**

* **Email: support@cbcentra.com**
* **Phone: [Your support number]**
* **Hours: Monday Friday, 8:00 AM 5:00 PM**
* **Emergency afterhours support: For system outages only**

**STAFF TAB**

**Overview**

The Teacher Management tab allows you to manage teaching staff information, including personal details, contact information, employment data, and photos. You can add, edit, delete, search, export, and import teacher records.

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***Adding a New Teacher***

***StepbyStep Guide***

1. Navigate to the Staff Form Tab Click on the "Staff Form" tab at the top

2. Fill in Personal Information

* Enter a unique Staff ID Code (required)
* Select Salutation (Mr., Mrs., Ms., Dr., Prof.)
* Enter First Name and Surname (required)
* Full Name will autogenerate
* Select Gender
* Enter Birth Date using the calendar picker
* Enter National ID Number
* Enter Next of Kin information

3. Fill in Contact Information

* Enter Email address
* Provide Phone Contact 1 and Day Phone numbers
* Enter Current Address
* Specify Home District
* Add Emergency Contact numbers

4. Fill in Employment Information

* Select the School from the dropdown (required)
* Enter Subject Specialty
* Specify Qualifications
* Select Date Joined using calendar
* Choose Staff Type (Teaching, Administrative, etc.)
* Select Employment Status (Fulltime, Parttime, etc.)
* Enter Position (required)
* Enter Monthly Salary
* Check "Active Staff Member" if applicable

5. Add a Photo (Optional)

* Click "Select Photo" to choose a teacher photo
* Supported formats JPG, JPEG, PNG, GIF, BMP
* Click "Remove" to delete the selected photo

6. Save the Record

* Click "Add Teacher" to save the new record
* The system will validate all required fields before saving

***Editing an Existing Teacher***

***Stepbystep Guide***

1. Navigate to the Staff Data Tab Click on the "Staff Data" tab
2. Select a Teacher Click on any teacher in the list to select them
3. Switch to Form Tab Click "Edit Selected" or doubleclick the teacher
4. Make Changes Modify any fields as needed
5. Save Changes Click "Update" to save your changes

***Deleting a teacher***

***Stepbystep Guide***

1. Select a Teacher From the Staff Data tab, click on a teacher to select them
2. Delete Click the "Delete" button
3. Confirm Click "Yes" in the confirmation dialog to permanently delete the teacher

***Searching for Teachers***

***Stepbystep Guide***

1. Go to Staff Data Tab Click on the "Staff Data" tab
2. Enter Search Term Type in the search box (searches names, IDs, emails, subjects, etc.)
3. View Results The table will automatically filter as you type
4. Clear Search Click "Clear" to show all teachers again

***Exporting Data***

***Stepbystep Guide***

1. Go to Staff Data Tab Click on the "Staff Data" tab
2. Click Export Data. The system will generate an Excel file with all teacher data
3. File Opens Automatically. The exported file will open in Excel
4. File Location. Files are saved in the "exports" folder within the application directory

***Importing Data***

***Preparation***

1. Prepare Your CSV File

* Use UTF8 encoding (save in Excel as "CSV UTF8")
* Include these column headers (exact names recommended)

teacher\_id\_code, salutation, first\_name, surname, email

gender, phone\_contact\_1, day\_phone, current\_address

home\_district, subject\_specialty, qualification, date\_joined

emergency\_contact\_1, emergency\_contact\_2, national\_id\_number

birth\_date, bank\_account\_number, next\_of\_kin, employment\_status

is\_active, staff\_type, position, monthly\_salary, school\_name

2. School Names Must Match

The school\_name in your CSV must exactly match schools in the database

Use the "Show Schools" button to see available school names

***Stepbystep Import***

1. Go to Staff Data Tab Click on the "Staff Data" tab
2. Click Import Data, Select your CSV file
3. Select Encoding (if needed) UTF8 is recommended
4. Choose Update Option Select whether to update existing teachers
5. Review Preview Check the data preview for any issues
6. Confirm Import Click "Import" to complete the process
7. Review Results. The system will show success/failure counts

***Working with Photos***

***Adding Photos***

* Click Select Photo. Choose an image file from your computer
* Supported Formats JPG, JPEG, PNG, GIF, BMP
* Automatic Resizing Photos are automatically resized to 300x300 pixels

***Removing Photos***

1. Click Remove. Removes the currently displayed photo

2. Save Changes. Remember to update the teacher record to save the change

***Tips and Best Practices***

***Data Entry Tips***

1. Use Consistent Formats

* Dates YYYYMMDD format works best
* Phone numbers Use consistent formatting
* Email addresses Use valid email formats

2. Required Fields

* Staff ID Code, First Name, Surname, School, and Position are required

3. Duplicate Checking

* The system checks for duplicate ID codes, emails, and national IDs
* You'll receive a warning if duplicates are detected

***Import Tips***

* Test with Small Files. Import a few records first to test your format
* Check School Names. Ensure school name match exactly
* Use UTF8 Encoding Prevents character encoding issues
* Backup First Export your current data before doing large imports

***Troubleshooting***

1. Import Fails

* Check that all required columns are present
* Verify school names match exactly
* Ensure dates are in YYYYMMDD format

2. Photos Not Displaying

* Check that the image file is not corrupted
* Try using a different image format

3. Search Not Working

* Clear the search box and try again
* Check for extra spaces in your search term

***Support***

If you encounter issues

1. Check that all required fields are filled
2. Verify your data formats are correct
3. Ensure you have the necessary permissions
4. Contact technical support if problems persist

\*This user guide covers the basic functionality of the Teacher Management System. For advanced features or specific use cases, please refer to additional documentation or contact your system administrator.\*