## 📌 Overview

The **NHRC SOP Portal** is a secure web-based system designed for managing Standard Operating Procedures (SOPs), amendments, audit trails, user management, notifications, support tickets, and API keys within an institutional environment. It is built using **Flask**, **SQLAlchemy**, **Flask-Mail**, and **Bootstrap**, offering a modern, role-based portal for document and process governance.

## ⚙️ ****Core Features****

✅ User Authentication (Login, Logout, Password Reset)  
✅ Role-Based Access Control (Admin, Director, HOD, Research Staff, etc.)  
✅ SOP Upload, Version Control, Approval Workflow  
✅ Amendment Management (Two-Stage Workflow)  
✅ Audit Logs & History Tracking  
✅ Notifications (Popup & Email)  
✅ API Key Management  
✅ Dashboard with Real-Time Charts  
✅ Support Ticket System  
✅ User Management (Add, Promote, Suspend, Reset Password)  
✅ Excel Export (Audit Logs, Amendments, Assignments)  
✅ REST-like API endpoints (secured with API keys)

## 🏗️ ****Technology Stack****

* **Backend:** Flask, Flask-SQLAlchemy, Flask-Migrate
* **Database:** SQLite
* **Frontend:** HTML, Bootstrap, jQuery
* **Email:** Flask-Mail (SMTP integration)
* **Authentication:** Flask-Login
* **Export:** Pandas, WeasyPrint, xlsxwriter
* **File Handling:** secure\_filename, uploads folder
* **Security:** CSRF, password hashing, session management, random password generation

## 🔐 ****User Roles****

| **Role** | **Description** |
| --- | --- |
| Admin | Full control over the system, users, settings, and logs |
| Director | Upload, approve SOPs, manage amendments |
| Head of Department | Upload, approve SOPs, manage amendments |
| Research Officer | View, read, acknowledge SOPs |
| Research Assistant | View, read, acknowledge SOPs |
| Guest, Monitor, Junior Staff | Limited access, view-only or as configured |

## 🗃️ ****Database Models****

* **User** → Manages user credentials, roles, activity status
* **SOP** → Stores uploaded SOP files with metadata and versioning
* **ReadLog** → Tracks which users read which SOPs and when
* **AuditLog** → Logs system actions (upload, approval, delete, restore, etc.)
* **Amendment** → Handles draft/final amendments on SOPs with a two-stage process
* **AmendmentAudit** → Tracks amendment history and user actions
* **SOPAssignment** → Assigns SOPs to users with acknowledgment tracking
* **Notification** → Stores popup notifications for users
* **APIKey** → Manages generated API keys and their validity
* **Setting** → Stores portal settings (name, logo, theme, email)
* **SupportTicket** → Captures user support requests and admin replies

## 📂 ****Main Modules and Functionalities****

### ➤ ****User Authentication****

* Register users (admin-only)
* Login, logout, password change, password reset
* Role-based page access with decorators (login\_required, admin\_required)

### ➤ ****SOP Management****

* Upload files (pdf, doc, docx)
* Automatic versioning (1.0, 1.1, etc.)
* Approval workflow (draft → approved)
* Soft delete and restore
* Read acknowledgment (single & bulk)
* Assign SOPs to users or groups
* View version history

### ➤ ****Amendments Management****

* Stage 1 → Users submit amendment requests
* Stage 2 → Admin/HOD reviews, updates, reaches consensus, closes amendment
* Automatic email notifications at submission and closure
* Export amendment logs to Excel

### ➤ ****Audit Trail****

* Logs user actions (login, upload, approval, delete, assignment, etc.)
* View logs by user, action, date
* Export logs to Excel

### ➤ ****Dashboard****

* Real-time charts (uploads, amendments, category breakdowns)
* Filters by year, month, category, status

### ➤ ****Support Tickets****

* Users can submit support tickets
* Admins can reply and close tickets
* Sends styled HTML email responses

### ➤ ****Notifications****

* Admins can send popup and/or email notifications to all users or by role
* Users see unseen notifications until acknowledged

### ➤ ****API Key Management****

* Admins can generate, enable/disable, delete, and regenerate API keys
* API keys have optional expiry dates

## ⚙️ ****Configuration Details****

* **Database:** sqlite:///sop\_app.db
* **File Upload Folder:** uploads/
* **Allowed File Types:** pdf, doc, docx
* **Email SMTP:** Gmail SMTP server (smtp.gmail.com:587)

## 🔗 ****Important Routes****

| **Route** | **Purpose** | **Access** |
| --- | --- | --- |
| / | Home / Dashboard redirect | All |
| /login / /logout | User login/logout | All |
| /register | Register user (admin only) | Admin |
| /upload | Upload SOP | Admin, Director, HOD |
| /sops / /documents | View/filter SOPs | All |
| /amendments | View and submit amendments | All |
| /manage\_amendment/<id> | Manage amendment stages | Admin, HOD |
| /audit-log / /audit-logs/download | View/export audit logs | Admin, Director, HOD |
| /dashboard / /dashboard\_data | View dashboard charts | All |
| /admin/users | Manage users | Admin |
| /admin/api\_keys | Manage API keys | Admin |

## 📧 ****Email Notifications****

* Welcome email with temporary password
* Password reset email
* Amendment submission and closure notifications
* SOP assignment emails
* General admin announcements (via notifications center)

## 💡 ****Security Features****

* Hashed passwords (generate\_password\_hash)
* Role-checked routes (login\_required, admin\_required)
* Soft delete on users and SOPs
* API keys with enable/disable and expiry
* Audit logging on all critical actions

## 📤 ****Export Features****

* Audit Logs → Excel
* Amendments → Excel
* SOP Assignments → Excel

## 📊 ****Dashboard Analytics****

* Upload trends by month
* SOP counts by category
* Amendment status (draft/final, raised/closed)
* Summary metrics (total uploads, amendments, categories)

## 🔧 ****Admin Settings****

* Portal name and logo
* Admin email address
* Theme color selection
* Enable/disable public registration