

Specialized Engineering — HR Certification Portal (Internal IIS Web Portal)

Project Description (Summary)

Build a simple internal HR web portal for Specialized Engineering to **track employee certification requests** and manage the **certification agency + certification catalog** that powers the request form dropdowns. The portal will run on the **CES IIS server**, be accessible **only on the local network**, and will not require user authentication (per requirements). The application will support standard CRUD workflows and provide a clean, practical UI for daily use by two internal HR users.

Confirmed Requirements (Non-Negotiable)

Access / Deployment

- **No authentication / no login** (system is internal-only, local network).
- Deploy to **CES IIS prod server**.
- Users access via **desktop shortcut** and/or **bookmark** to internal server IP.

Core Data Capture (from provided reference form)

Certification Request must capture:

- Employee Name
- Request Date
- Manager
- Certification Agency (DropDown 1)
- Certification Desired (DropDown 2, filtered by Agency)
- Request Type (radio): **Review Session, Written Exam, Practical Exam, Reciprocity** (and/or Recertification if later clarified)

DropDown Lists

- DropDown 1 agencies (minimum):
 - ACI, MARTCP, ICC, WACEL, NICET, NRMCA, VDOT, OSHA, WVDOH, AWS
 - Plus **Other** category
- DropDown 2 certification list:
 - Pre-seeded from the provided PDF list
 - Must be **filtered based on DropDown 1 selection**
 - Certifications not mapped to listed agencies go under **Other**

Core Functionality

- Create, view, edit, and delete **Certification Requests**
- Maintain a list/table of Certifications obtained and details
- Maintain the **Agency list** and **Certification list** in the portal (Admin Settings page):
 - Add agencies
 - Add certifications
 - Assign certification to agency
 - Prefer **Deactivate** over hard-delete to prevent data breaks (safe operations)

Proposed Portal Pages & Rough Design (within 30–40 hours)

1. Dashboard

- Summary counts (e.g., total requests, recent requests)
- “Recent Requests” table

Employee	Agency	Certification	Type	Date	Status
John Smith	ACI	Concrete Field Testing...	Written Exam	2024-01-15	Pending
Sarah Johnson	MARTCP	Asphalt Plant Technician	Practical Exam	2024-01-14	Approved
Mike Williams	ACI	Strength Testing Tech...	Recertification	2024-01-13	Pending
Emily Davis	Other	Safety Certification	Review Session	2024-01-12	Approved

2. Certification Requests

- Purpose: List + create + edit + delete + manage certification request
- Agency → Certification filtered dropdown behavior

- Radio type selection

The screenshot shows the 'Certification Requests' page within the 'HR Portal Certifications' application. The left sidebar includes links for Dashboard, Certification Requests (which is active), Certifications, and Admin Settings. The main content area has a title 'All Certification Requests' with search and filter options ('Search requests...', 'All...') and a dropdown for 'All Status'. A table lists five certification requests:

Employee	Manager	Agency	Certification	Date	Status	Actions
John Smith	David Lee	ACI	Concrete Field Testin...	2024-01-15	Pending	View Edit Delete
Sarah Johnson	David Lee	MARTCP	Asphalt Plant Technician	2024-01-14	Approved	View Edit Delete
Mike Williams	Jennifer Clark	ACI	Strength Testing Tech...	2024-01-13	Pending	View Edit Delete
Emily Davis	Jennifer Clark	Other	OSHA Safety Certificat...	2024-01-12	Approved	View Edit Delete
Robert Brown	David Lee	ACI	Aggregate Testing Te...	2024-01-11	Rejected	View Edit Delete

3. Certifications (Catalog)

- View/search list of certifications and their agency assignment
- Purpose: to view/edit certification details

The screenshot shows the 'Employee Certifications' section of the HR Portal. On the left is a dark sidebar with navigation links: Dashboard, Certification Requests, Certifications (which is highlighted in orange), and Admin Settings. The main area has a title 'Certifications' with a search bar and filter dropdowns for 'Search certifications...' and 'All...'. Below is a table titled 'Employee Certifications' with columns: Employee, Agency, Certification, Cert #, Expiry Date, Status, and Actions. The table lists five entries:

Employee	Agency	Certification	Cert #	Expiry Date	Status	Actions
Emily Davis	Other	OSHA Safety Certificat...	OSHA-2021-1234	2023-08-22	Expired	
James Wilson	ACI	Concrete Laboratory T...	ACI-2023-0234	2024-02-18	Expiring Soon	
John Smith	ACI	Concrete Field Testin...	ACI-2024-0012	2026-01-20	Active	
Lisa Martinez	MARTCP	Soils & Aggregate Tec...	MARTCP-2024-0089	2026-01-05	Active	
Mike			ACI-	2024-03-	Expiring	

4. Admin Settings

- Manage Agencies (add/edit/deactivate)
- Manage Certifications (add/edit/deactivate, assign to agency)

The screenshot shows the 'Admin Settings' section with the 'Certifications' link highlighted in orange. The main area has a title 'Admin Settings' with a search bar and filter dropdowns for 'Agencies' and 'Certification Types'. Below is a section titled 'Certification Agencies' with a sub-instruction 'Manage certification agencies and their associated certifications'. It includes an 'Add New Agency' form with fields for 'Short Name / Abbreviation' (e.g., ACI) and 'Full Name' (e.g., American Concrete Institute), and a large orange '+ Add Agency' button. Below is a table listing existing agencies:

Abbreviation	Full Name	Certifications	Actions
ACI	American Concrete Institute	12 certifications	
MARTCP	Maryland Asphalt Road Testing Certification Program	8 certifications	
Other	Other Certifications	5 certifications	

Architecture & Tech Stack

Application

- **ASP.NET Core Razor Pages** (modular structure; scalable for future additions)
- **Entity Framework Core** for data access
- Server-side validation + consistent error handling

Database

- **PostgreSQL** (single database instance for the portal)
- EF Core migrations used for repeatable schema management
- Seed data for:
 - Agencies (including Other)
 - Certifications list + agency mapping

Deployment (IIS)

- Publish as IIS-hosted ASP.NET Core application
- Configuration via appsettings + environment variables (connection string, etc.)
- Access limited to internal network

Security Considerations (Given “No Auth” Requirement)

Even without login, the solution will implement baseline protections appropriate for internal apps:

- Constrain network exposure (expected: internal-only routing/firewall/VLAN policies)
- Input validation on all forms/fields
- Safe admin operations:
 - Prefer deactivate over delete to avoid orphaning references
- Optional: basic operational logging for troubleshooting

Estimated Effort (Strictly 30–40 Hours)

This estimate assumes a clean, simple UI (no custom design system) and focuses on core workflows.

Work Breakdown

1. Project design and setup + Razor layout + navigation structure: **3–5 hrs**
2. Database schema + EF migrations + seed data: **6–8 hrs**
3. Certification Requests CRUD + dropdown filtering logic: **10–12 hrs**

4. Admin Settings (Agencies + Certifications management): **6–8 hrs**
5. Dashboard summary + recent requests: **3–4 hrs**
6. QA/testing + IIS deployment packaging + smoke tests: **2–3 hrs**

Total Estimate: 30–40 hours

Deliverables / Outcome

At completion, CES/Specialized Engineering receives:

- Working internal IIS web portal
- PostgreSQL-backed database
- Seeded agencies + certifications
- CRUD workflows for requests and catalog maintenance
- Project documentation & deployment/config notes for IIS