

# **SBYEC-Website Upgrade**

## *Project Requirements and Specifications*

Silver Buckle Youth Equestrian Center



**Silver Buckle Tech**



**SILVER BUCKLE TEC**

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## I. Introduction

Silver Buckle Youth Equestrian Center (SBYEC) is a nonprofit that offers riding lessons, youth programs, and community events. The website is the primary means by which families stay informed about what's happening at the ranch. A student team modernized the WordPress site [1] last year, but some key features were left unfinished, and staff still find updates hard to manage on their own.

Our project aims to enhance the site's functionality, ease of use, and sustainability. We'll improve the event calendar [2], link event pages to Zeffy for ticket purchases [3], expand lesson and sponsor pages, embed SBYEC's social feed [4], and simplify day-to-day content updates for non-technical staff. We'll also strengthen security and accessibility with HTTPS and WCAG compliance [4]. By the semester's end, we aim to deliver a well-structured, maintainable site that empowers staff and provides visitors with clear, engaging, and accessible information.

## II. System Requirements Specification

This section outlines the key functional and non-functional requirements, use cases, user stories, and traceability matrix for the Silver Buckle Youth Equestrian Center (SBYEC) Website Enhancement Project. It provides a comprehensive overview of the system's goals, behavior, and user interactions.

### II.1. Functional Requirements

Each functional requirement is listed below, accompanied by a detailed description, source, and priority level.

#### II.1.1 Event Management

Functional Requirement	[FR-1] Calendar Display
Description	The system must provide a readable calendar that allows staff to add and update events [2].
Source	Client request
Priority	Level 0 (Essential)

Functional Requirement	[FR-2] Event Details
Description	The system must allow each event to link to a dedicated detail page [2].
Source	Client request
Priority	Level 0 (Essential)

Functional Requirement	[FR-3] Ticket Purchase
Description	The system must include secure ticket purchase links via Zeffy [3] (or other approved payment methods).

Source	Client request
Priority	Level 0 (Essential)

### II.1.2 Content and Social Media Management

Functional Requirement	[FR-4] Facebook Feed Integration
Description	The system must embed SBYEC's Facebook feed [4] on the homepage.
Source	Sponsor request
Priority	Level 1 (Desirable)

Functional Requirement	[FR-5] Lesson Pages
Description	The system must enable structured subpages for different lesson types (Rising Stars, Private Lessons, Group Lessons).
Source	Sponsor request
Priority	Level 0 (Essential)

Functional Requirement	[FR-6] Staff Updates
Description	Admins must be able to easily update the About/Team and Sponsor/Partner pages.
Source	Client request
Priority	Level 0 (Essential)

### II.1.3 User Interaction

Functional Requirement	[FR-7] Contact Forms
Description	Customers must be able to submit inquiries via contact forms; submissions are delivered to SBYEC's email.
Source	Client request
Priority	Level 0 (Essential)

Functional Requirement	[FR-8] Newsletter Signup
Description	Customers must be able to sign up for a newsletter and receive a confirmation [5].
Source	Client request
Priority	Level 1 (Desirable)

Functional Requirement	[FR-9] WordPress Management
Description	Admins must be able to log in to WordPress and update website content.
Source	Client request
Priority	Level 0 (Essential)

Functional Requirement	[FR-10] AI Chatbot
Description	Customers must be able to ask common questions on the website and receive pre-defined responses.
Source	Team suggestion / Client interest
Priority	Level 1 (Desirable)

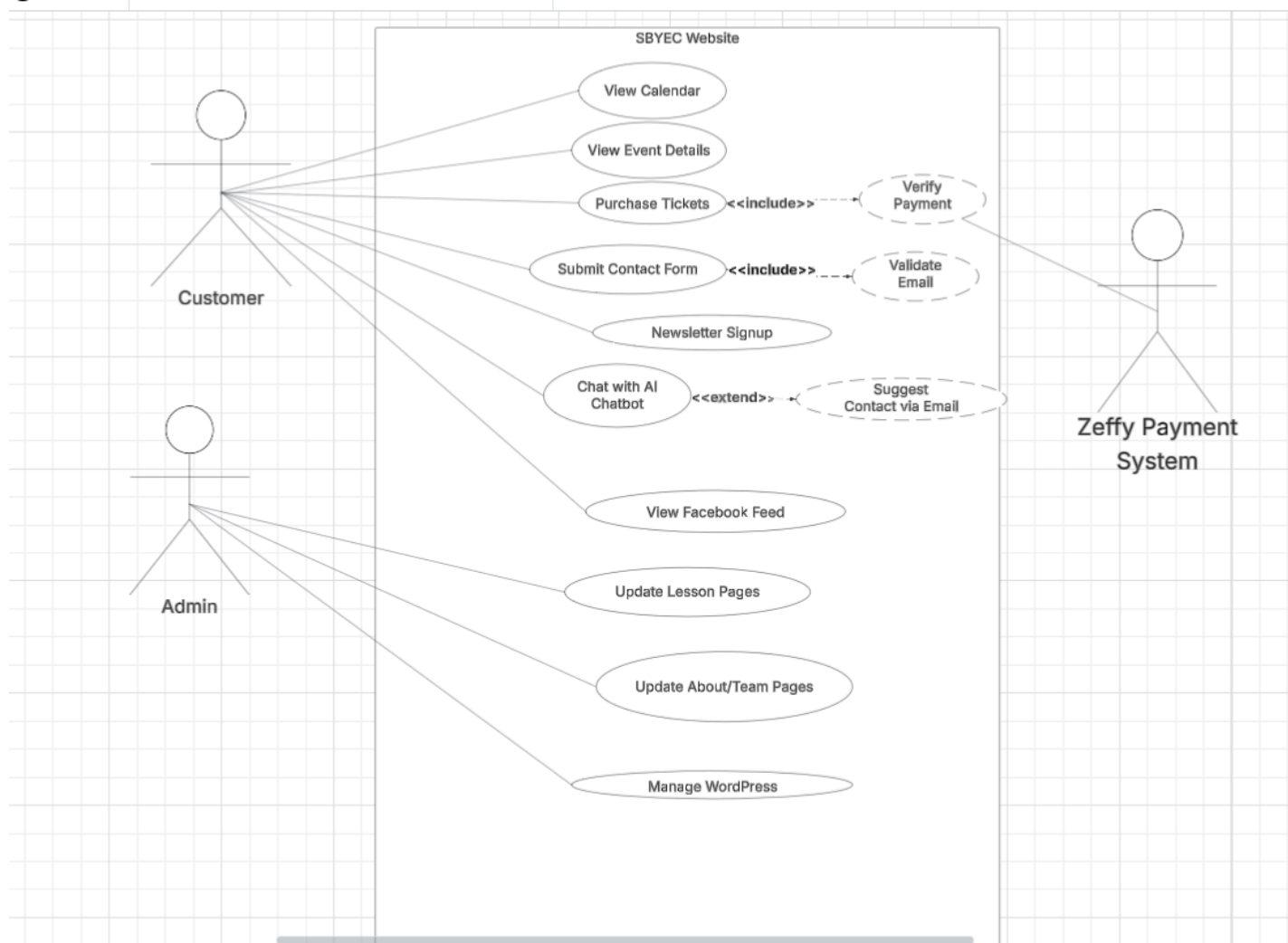
## II.2. Non-Functional Requirements

The non-functional requirements outline the system's operational qualities, such as performance, accessibility, and security, to ensure it meets quality standards beyond core functionality.

Non-Functional Requirement	Description	Verification method
[NFR-1] Performance	The website shall load the homepage within 3 seconds under normal broadband conditions.	validated using GTmetrix and browser Performance panel; homepage LCP $\leq$ 3s under normal broadband
[NFR-2] Availability	The website shall maintain at least 99% uptime during the project semester.	monitored via hosting uptime monitor; goal $\geq$ 99% during semester
[NFR-3] Responsiveness	The website shall display correctly on desktop, tablet, and mobile devices.	checked on desktop/tablet/phone breakpoints; no layout overflow
[NFR-4] Chatbot Accuracy	The AI chatbot shall answer 90% of basic user questions with correct predefined responses.	manual test set of FAQs; $\geq$ 90% correct response
[NFR-5] Usability	Staff with minimal training shall be able to update pages via WordPress.	2 staff run-throughs; publish/edit flow $\leq$ 10 minutes without training
[NFR-6] Security	All forms and admin logins shall use HTTPS encryption.	enforced via HTTPS/TLS; certificate validity checked on forms and admin login
[NFR-7] Accessibility	The website shall follow WCAG 2.2 AA accessibility guidelines.	audited with Lighthouse/axe-core; color contrast $\geq$ 4.5:1; focus order/keyboard navigation verified

## II.3. Use Cases

The use cases describe common scenarios of user interactions with the system, explaining how functional requirements are applied in specific situations.



Use Case	UC1-View Calendar Events
Actors	Customer
Pre-condition	User is on the homepage.
Post-condition	The monthly calendar is displayed (or shows 'No events scheduled this month').
Main Flow	<ul style="list-style-type: none"> <li>- Click on 'Calendar'</li> <li>- System shows a monthly view with scheduled events</li> </ul>
Alternative Flow	<ul style="list-style-type: none"> <li>- No events for month -&gt; Show message 'No events scheduled this month'</li> </ul>
Related Requirements	FR-1, FR-2

Use Case	UC2-Purchase Event Tickets
Actors	Customer
Pre-condition	User is viewing an event detail page.
Post-condition	The ticket purchase is confirmed, and an acknowledgment is displayed.

Main Flow	<ul style="list-style-type: none"> <li>- Click 'Buy Tickets'</li> <li>- Redirect to Zeffy for secure payment</li> <li>- System shows confirmation</li> </ul>
Alternative Flow	- Payment fails -> Show error 'Payment could not be processed, please try again'
Related Requirements	FR-3

Use Case	UC3-Update Website Content
Actors	Staff (Admin)
Pre-condition	Admin is logged into WordPress.
Post-condition	Updated content appears on the live website.
Main Flow	<ul style="list-style-type: none"> <li>- Open About/Team page</li> <li>- Edit content</li> <li>- Click 'Save'</li> </ul>
Alternative Flow	- Required fields blank -> Show 'Please complete all required fields'
Related Requirements	FR-6, FR-9

Use Case	UC4-View Facebook Feed
Actors	Customer
Pre-condition	User is on the homepage.
Post-condition	Latest Facebook posts are displayed on the homepage feed.
Main Flow	- Homepage loads embedded Facebook feed
Alternative Flow	- No recent posts -> Show message 'No recent updates available'
Related Requirements	FR-4

Use Case	UC5-Newsletter Signup
Actors	Customer
Pre-condition	User is on the homepage.
Post-condition	Subscription confirmation is displayed (and an email is sent if configured).
Main Flow	<ul style="list-style-type: none"> <li>- Enter a valid email</li> <li>- Click 'Subscribe'</li> <li>- System confirms 'Subscription successful'</li> </ul>
Alternative Flow	- Invalid email -> Show 'Please enter a valid email address'
Related Requirements	FR-8

Use Case	UC6-Submit Contact Form
Actors	Customer

Pre-condition	User is on the Contact Us page.
Post-condition	Inquiry is delivered to SBYEC's email; confirmation message displayed.
Main Flow	- Enter name, email, message - Click 'Submit' - System confirms submission
Alternative Flow	- Email missing -> Show 'Email is required'
Related Requirements	FR-7

Use Case	UC7-Chat with AI Chatbot
Actors	Customer
Pre-condition	User is on the homepage.
Post-condition	User receives an answer or instruction to contact via email.
Main Flow	- Type a fundamental question - Chatbot responds with a stored answer
Alternative Flow	- Question not in knowledge base -> 'I'm not sure, please contact us by email'
Related Requirements	FR-10

## II.4. User Stories

### - User Story US1: View Calendar

As a customer, I want to view a calendar of events so that I can see upcoming activities at SBYEC.

Feature: Calendar

Scenario: Customer views the monthly calendar

Given the customer is on the homepage

When they click on 'Calendar'

Then the monthly calendar view should be displayed

### - User Story US2: Purchase Tickets

As a customer, I want to buy tickets through a secure link so that I can register for events conveniently.

Feature: Ticket Purchase

Scenario: Successful ticket purchase

Given the customer is on an event detail page

When they click 'Buy Tickets' and complete payment

Then a purchase confirmation should be displayed

### **- User Story US3: Update Content**

As an admin, I want to update the About/Team page so that the site shows the correct staff team.

Feature: Content Update

Scenario: Admin updates About page

Given the admin is logged in

When they edit the About page and click 'Save'

Then the updated information should appear on the live website

### **- User Story US4: Contact Form Submission**

As a customer, I want to submit an inquiry through a contact form so that I can ask questions without having to call.

Feature: Contact Form

Scenario: Valid form submission

Given the customer is on the Contact Us page

When they enter a valid name, email, and message and click 'Submit'

Then they should see a confirmation message and the inquiry should be delivered to SBYEC's email

## **II.5. Traceability Matrix**

The table below maps functional requirements to their respective use cases and user stories.

Functional Requirement	Use Case	User Story	Priority	Related NFR
FR-1 Calendar Display	UC1	US1: View Calendar	Level 0	NFR-1, NFR-3, NFR-7
FR-2 Event Details	UC1	US1: View Calendar	Level 0	NFR-1, NFR-3, NFR-7
FR-3 Ticket Purchase	UC2	US2: Purchase Tickets	Level 0	NFR-3, NFR-7
FR-4 Facebook Feed Integration	UC4	—	Level 1	NFR-1, NFR-3, NFR-7
FR-5 Lesson Pages	—	—	Level 0	NFR-1, NFR-3, NFR-7
FR-6 Staff Updates	UC3	US3: Update Content	Level 0	NFR-5, NFR-6



FR-7 Contact Forms	UC6	US4: Contact Form Submission	Level 0	NFR-3, NFR-6, NFR-7
FR-8 Newsletter Signup	UC5	—	Level 1	NFR-3, NFR-6, NFR-7
FR-9 WordPress Management	UC3	US3: Update Content	Level 0	NFR-5, NFR-6
FR-10 AI Chatbot	UC7	—	Level 1	NFR-1, NFR-3, NFR-4, NFR-7

## II.6. Standards and Compliance

This project complies with established technical and ethical standards. Because the SBYEC website is built entirely on WordPress and community plugins—without custom backend code—our compliance emphasizes configuration, verification, and maintainable content practices instead of application-level source code changes.

Standard / Guideline	Domain	Description	Application in Project
<b>IEEE 830 – Software Requirements Specification (1998)</b>	Software documentation	Defines SRS structure and traceability across FR/NFR, use cases, and tests.	We organized FR/NFR, use cases, and the traceability matrix according to IEEE 830 [1]; each requirement is uniquely numbered and traceable to UC/US (see Section II.5).
<b>W3C WCAG 2.2, Level AA (2023)</b>	Accessibility	Criteria for color contrast, keyboard navigation, and alternatives for non-text content.	Pages and templates include alt text; color contrast targets $\geq 4.5:1$ ; keyboard access verified on main navigation. Audited with Lighthouse/axe-core (see Verification notes below) [4].

<b>HTTPS / TLS 1.3</b>	Web security	Encrypted transport for forms and admin logins.	Enforced site-wide SSL; admin and all forms are served via HTTPS [4] (browser certificate lock verified).
<b>ACM Code of Ethics (2018)</b>	Professional practice	Fairness, privacy, transparency in computing practice.	No unnecessary data collection; contact is email-based; newsletter sign-up uses explicit consent language.

### Verification Methods and Evidence (summary)

- **Accessibility (WCAG 2.2 AA):** Google Lighthouse (v12) desktop audits on Home, Lessons, and All Events; accessibility score  $\geq 90$ ; manual checks for alt text and focus order.
- **Security (HTTPS):** Valid certificate lock icon shown on all forms and wp-admin login screen; SSL plugin enabled with auto-renew.
- **Documentation Quality (IEEE 830):** FR/NFR numbering and UC/US mappings maintained in the traceability matrix; all requirements are uniquely identified.

## III. System Evolution

The site remains on the existing WordPress stack; hosting performance and transport-level security are controlled by the hosting provider and WordPress core/plugins rather than by custom code.

- Assumptions: Site remains on WordPress; content editors are non-technical; donations/ticketing routed to third-party (e.g., Zeffy/Zelle/Venmo) [3].
- Anticipated Changes:
  1. Plugin policy/price updates may affect features or embedding;
  2. Third-party availability (Zeffy/Facebook) [4] may change link flows or widgets;
  3. Staff turnover could require lighter training materials and role-based access.
- Risks / Change Points: If selected plugins [1] become unsupported or incompatible after a WP core update, we must either (a) pin versions and test before upgrading, or (b) swap plugins and re-map content within 1–2 sprints

## IV. Glossary

- WordPress: A CMS used to manage and publish website content.
- The Events Calendar: A WordPress plugin family for calendars and event detail pages.
- Zeffy: A zero-fee fundraising/ticketing platform commonly used by nonprofits.
- WCAG 2.2 AA: Web Content Accessibility Guidelines (level AA) for accessible design.
- Uptime: Percentage of time a site is operational and reachable over a period.
- Predefined Responses (Chatbot) : A small, curated FAQ set used to auto-answer common questions without collecting user data.

## V. References

- [1] WordPress.org, "Roles and Capabilities," Accessed: Sep. 13, 2025. [Online]. Available: <https://wordpress.org/documentation/article/roles-and-capabilities/>
- [2] The Events Calendar, "Technical Documentation," Accessed: Sep. 13, 2025. [Online]. Available: <https://docs.theeventscalendar.com/>
- [3] Zeffy, "Ticketing System for Fundraising Events," Accessed: Sep. 13, 2025. [Online]. Available: <https://www.zeffy.com/home/ticketing-system-fundraising-events>
- [4] Meta for Developers, "Page Plugin," Accessed: Sep. 13, 2025. [Online]. Available: <https://developers.facebook.com/docs/plugins/page-plugin/>
- [5] Nielsen Norman Group, "Donation Usability: Increasing Online Giving to Non-Profits and Charities." Accessed: Sep. 26, 2025. [Online]. Available: <https://www.nngroup.com/articles/donation-usability/>
- [6] M+R, "M+R Benchmarks 2025." Accessed: Sep. 26, 2025. [Online]. Available: <https://mrbenchmarks.com/>
- [7] Blackbaud Institute, "2024 Trends in Giving." Accessed: Sep. 26, 2025. [Online]. Available: <https://institute.blackbaud.com/resources/2024-trends/>
- [8] Stanford Social Innovation Review, "Taking On Tech Governance." Accessed: Sep. 26, 2025. [Online]. Available: [https://ssir.org/articles/entry/taking\\_on\\_tech\\_governance](https://ssir.org/articles/entry/taking_on_tech_governance)