Learnvelo Accessibility Conformance Report

International Edition

(Based on VPAT® Version 2.5Rev)

Name of Product/Version: Learnvelo (Web Application)

Report Date: March 2026

Product Description: Learnvelo is a full-stack web application for higher education course delivery. Instructors create AI-enhanced course content; students engage with interactive reading pages, quizzes, activities, video content, and AI mentor chat. Delivered as a web application accessible via modern browsers. The product serves two primary roles: Students (content consumption) and Instructors (content authoring). LMS Admin and LMS Viewer roles are excluded from this report (~1–2 users per institution).

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Notes:

- Third-party components used: MDXEditor (rich text editor, v3.42.0), YouTube embedded player, MathLive (math input), Cloudflare Turnstile (bot detection). Known limitations of third-party components are noted in the relevant criteria.
- This report supersedes any prior accessibility documentation.

Evaluation Methods Used:

- Manual testing with VoiceOver + Chrome (macOS) across all application routes
- Manual testing with NVDA + Chrome (Windows) across all application routes
- Keyboard-only navigation testing (Chrome) across all application routes
- Automated testing with @axe-core/playwright (WCAG 2.0 A/AA, 2.1 A/AA, 2.2 AA tags) integrated in end-to-end test suite covering all routes
- Automated testing with jest-axe for component-level accessibility scans
- Static analysis with eslint-plugin-jsx-a11y (34 rules) integrated in CI
- Manual color contrast verification with WAVE and axe DevTools browser extensions
- Code audit of all ARIA attributes, landmark regions, heading hierarchy, and form label associations

Applicable Standards/Guidelines

Standard/Guideline	Included In Report
Web Content Accessibility Guidelines 2.0	Level A: Yes, Level AA: Yes, Level AAA: No
Web Content Accessibility Guidelines 2.1	Level A: Yes, Level AA: Yes, Level AAA: No

Standard/Guideline	Included In Report
Web Content Accessibility Guidelines 2.2	Level A: Yes, Level AA: Yes, Level AAA: No
Revised Section 508 standards (2017, corrected 2018)	Yes
EN 301 549 V3.1.1 (2019-11) AND V3.2.1 (2021-03)	Yes

Terms

The terms used in the Conformance Level information are defined as follows:

- **Supports**: The functionality of the product has at least one method that meets the criterion without known defects or meets with equivalent facilitation.
- **Partially Supports**: Some functionality of the product does not meet the criterion.
- **Does Not Support**: The majority of product functionality does not meet the criterion.
- **Not Applicable**: The criterion is not relevant to the product.
- **Not Evaluated**: The product has not been evaluated against the criterion. This can only be used in WCAG Level AAA criteria.

WCAG 2.x Report

Tables 1 and 2 also document conformance with:

- EN 301 549: Clause 9 (Web), Clauses 10.1–10.4 (Non-Web documents), Clauses 11.1–11.4 and 11.8.2 (Software), Clauses 12.1.2 and 12.2.4 (Documentation and support services)
- Revised Section 508: Chapter 5 — 501.1 Scope and 504.2 Content Creation or Editing; Chapter 6 — 602.3 Electronic Support Documentation

Note: When reporting on conformance with the WCAG 2.x Success Criteria, they are scoped for full pages, complete processes, and accessibility-supported ways of using technology as documented in the WCAG 2.1 Conformance Requirements.

Note on sub-categories: Learnvelo is a web application only. The following sub-categories apply:

- **Web:** All criteria evaluated and reported below.
- **Authoring Tool:** Instructor content authoring (MDXEditor, course creation wizard, drag-and-drop reorder) is delivered through the same web interface. Conformance is the same as Web unless noted.
- **Electronic Docs:** Not Applicable — Learnvelo does not produce electronic documents.
- **Software:** Not Applicable — Learnvelo is not native/installed software.

- **Closed:** Not Applicable — Learnvelo is not closed functionality software.

Table 1: Success Criteria, Level A

Criteria	Conformance Level	Remarks and Explanations
1.1.1 Non-text Content (Level A)	Web: Supports	All images use Next.js `<Image>` with required `alt` attributes. Decorative avatars use `aria-hidden="true"`. All icon-only buttons have `aria-label` with contextual descriptions. Charts wrapped with `role="img"` + `aria-label` and provide "View as data table" toggles for full tabular alternatives.
1.2.1 Audio-only and Video-only (Prerecorded) (Level A)	Web: Not Applicable	The platform embeds YouTube videos only as supplementary content; no audio-only content is produced or hosted.
1.2.2 Captions (Prerecorded) (Level A)	Web: Supports	AI-generated video search restricted to captioned-only results via YouTube Data API `videoCaption=closedCaption` parameter. Instructor-embedded videos display a caption status notice (confirmed/none/unavailable) at embed time. YouTube's built-in caption controls are available to all users.
1.2.3 Audio Description or Media Alternative (Prerecorded) (Level A)	Web: Not Applicable	All video content is supplementary to text-based reading pages. The reading page text content serves as the media alternative.
1.2.4 Captions (Live) (Level AA — included here per template)	Web: Not Applicable	No live audio or video streaming features.
1.2.5 Audio Description	Web: Not Applicable	See 1.2.3. Reading page text

Criteria	Conformance Level	Remarks and Explanations
(Prerecorded) (Level AA — included here per template)		provides the alternative.
1.3.1 Info and Relationships (Level A)	Web: Supports	Semantic HTML throughout: landmark regions (`main`, `nav`, `header`), proper heading hierarchy (H1>H2>H3), form labels associated via `id/labelId` or MUI implicit association, data tables use `<th>` and `aria-label`, lists use `<ul>/<ol>`.
1.3.2 Meaningful Sequence (Level A)	Web: Supports	DOM order matches visual order across all pages. Tab order verified logical via keyboard testing on all routes.
1.3.3 Sensory Characteristics (Level A)	Web: Supports	Instructions do not rely solely on shape, color, size, or position. Quiz timer uses text label "Critical!" alongside color change. Chart data available as tables.
1.4.1 Use of Color (Level A)	Web: Supports	Color is never the sole indicator of information. Quiz status uses text labels + icons. Chart data available as data tables. Quiz timer uses "Critical!" text label + `motion-safe:animate-pulse` alongside color changes.
1.4.2 Audio Control (Level A)	Web: Not Applicable	No auto-playing audio. YouTube embeds require user activation.
2.1.1 Keyboard (Level A)	Web: Supports	All functionality is keyboard-accessible. Drag-and-drop interactions (module reorder, page reorder, file reorder) have Move Up/Move Down button alternatives.

Criteria	Conformance Level	Remarks and Explanations
		MDXEditor toolbar is keyboard-navigable. Quiz interactions are fully keyboard-operable.
2.1.2 No Keyboard Trap (Level A)	Web: Supports	All modal dialogs (including MDXEditor custom plugin dialogs) are escapable via Escape key. Focus is restored to the trigger element on close. Verified via keyboard testing across all pages.
2.1.4 Character Key Shortcuts (Level A)	Web: Supports	No single-character keyboard shortcuts are implemented in the application.
2.2.1 Timing Adjustable (Level A)	Web: Supports	Session timeout uses 7-day JWT refresh token (satisfies 20-Hour Exception). Quiz timers use the Essential Exception (instructor-set, academic integrity); accessible warnings provided via `role="timer"`, `aria-live="assertive"`, "Critical!" text label, and 20-second warning display.
2.2.2 Pause, Stop, Hide (Level A)	Web: Supports	No auto-updating, auto-scrolling, or auto-moving content. The `motion-safe:` CSS prefix on animations respects `prefers-reduced-motion`.
2.3.1 Three Flashes or Below Threshold (Level A)	Web: Supports	No content flashes more than 3 times per second. CSS `animate-pulse` is gated by `motion-safe:` media query.
2.4.1 Bypass Blocks (Level A)	Web: Supports	Skip link implemented as first element in root layout. AppLayout component

Criteria	Conformance Level	Remarks and Explanations
		ensures skip target lands after `<Header>` navigation on all application pages.
2.4.2 Page Titled (Level A)	Web: Supports	All 40 routes have unique, descriptive `<title>` values via Next.js Metadata API using template `"%s | Learnvelo"`.
2.4.3 Focus Order (Level A)	Web: Supports	Tab order is logical across all pages. MDXEditor dialog focus order verified correct. Verified via keyboard testing.
2.4.4 Link Purpose (In Context) (Level A)	Web: Supports	No bare "click here" or "read more" links. All links have descriptive text or `aria-label` with contextual information.
2.5.1 Pointer Gestures (Level A)	Web: Supports	All drag-and-drop interactions have single-pointer Move Up/Move Down button alternatives. No multipoint or path-based gestures are required for any functionality.
2.5.2 Pointer Cancellation (Level A)	Web: Supports	MUI components use `onClick` (up-event). No actions are triggered on mouse-down alone. Destructive actions require confirmation dialogs.
2.5.3 Label in Name (Level A)	Web: Supports	Visible label text is included in the accessible name for all controls. Verified via VoiceOver and NVDA.
2.5.4 Motion Actuation (Level A)	Web: Not Applicable	No device motion or user motion gestures are used.
3.1.1 Language of Page (Level A)	Web: Supports	`<html lang="en">` set in root layout.
3.2.1 On Focus (Level A)	Web: Supports	No context changes occur on focus. Tabbing to

Criteria	Conformance Level	Remarks and Explanations
		elements does not trigger navigation or form submission.
3.2.2 On Input (Level A)	Web: Supports	Filter selects update displayed results without page navigation. No unexpected context changes occur on input.
3.3.1 Error Identification (Level A)	Web: Supports	Form errors displayed as text with MUI `Alert` and `helperText` components. Error indication is not color-only. Error messages are associated with their respective fields.
3.3.2 Labels or Instructions (Level A)	Web: Supports	All form inputs have visible labels. Password requirements are displayed. `InputLabel` + `labelId` pairing on all Select components.
4.1.1 Parsing (Level A)	Web: Supports	React/JSX enforces valid HTML structure. ESLint catches common issues. axe-core Playwright scans pass across all routes with no parsing violations.
4.1.2 Name, Role, Value (Level A)	Web: Partially Supports	**Student role: Supports.** All custom widgets have proper ARIA attributes. **Instructor role: Partially Supports.** MDXEditor custom plugin dialogs implement full ARIA dialog pattern (role, modal, labelledby, focus trap, Escape dismissal). Built-in MDXEditor toolbar has acceptable keyboard/AT support (v3.42.0). MathLive `<math-field>` has an upstream defect where an

Criteria	Conformance Level	Remarks and Explanations
		internal keyboard sink element (`<span role="textbox">`) lacks an accessible name — the outer `<math-field>` element has the correct `aria-label`; the internal element is not user-facing (clipped off-screen, `pointer-events: none`).

Table 2: Success Criteria, Level AA

Criteria	Conformance Level	Remarks and Explanations
1.3.4 Orientation (Level AA, 2.1 and 2.2)	Web: Supports	No locked orientation. Responsive layout adapts to portrait and landscape.
1.3.5 Identify Input Purpose (Level AA, 2.1 and 2.2)	Web: Supports	All personal data fields have correct autoComplete tokens (`email`, `current-password`, `new-password`, `given-name`, `family-name`). Verified across all authentication flows.
1.4.3 Contrast (Minimum) (Level AA)	Web: Supports	Primary brand color #1565C0 provides ~5.9:1 contrast ratio on white. All text meets 4.5:1 for normal text and 3:1 for large text. Standardized `ANALYTICS_COLORS` palette used for all chart elements. Systematic audit completed with WAVE and axe DevTools.
1.4.4 Resize Text (Level AA)	Web: Supports	Tested at 200% zoom. Layout reflows using responsive Tailwind classes. No content loss or overlap.
1.4.5 Images of Text (Level AA)	Web: Supports	No images of text are used. All text is rendered as real text.
1.4.10 Reflow (Level AA, 2.1	Web: Supports	Responsive layout via

Criteria	Conformance Level	Remarks and Explanations
and 2.2)		Tailwind/MUI Grid. Content reflows to single column at 320px equivalent (400% zoom).
1.4.11 Non-text Contrast (Level AA, 2.1 and 2.2)	Web: Supports	All UI components (focus rings, input borders, chart elements) meet 3:1 minimum contrast ratio. Analytics chart colors all pass 3:1+ on white backgrounds.
1.4.12 Text Spacing (Level AA, 2.1 and 2.2)	Web: Supports	MUI Typography uses relative units. Tested with custom spacing overrides — no content clipping or overlap.
1.4.13 Content on Hover or Focus (Level AA, 2.1 and 2.2)	Web: Supports	MUI Tooltips are dismissible (Escape key), hoverable, and persistent. No custom hover content violates this criterion.
2.4.5 Multiple Ways (Level AA)	Web: Supports	Navigation sidebar, breadcrumbs, and Explore page search/filter provide multiple ways to reach content.
2.4.6 Headings and Labels (Level AA)	Web: Supports	Proper heading hierarchy (H1>H2>H3) on all pages. All form inputs have visible, descriptive labels. Verified via VoiceOver heading navigation.
2.4.7 Focus Visible (Level AA)	Web: Supports	MUI theme applies `:focus-visible` with 2px outline and 2px offset on all interactive components. Inverted outline (white) used in dark header and skip link for sufficient contrast.
2.4.11 Focus Not Obscured (Minimum) (Level AA, 2.2	Web: Supports	Main header is not sticky (scrolls with content).

Criteria	Conformance Level	Remarks and Explanations
only)		Analytics filter bar (sticky) has `scroll-padding-top: 64px` to prevent focus obscuring. No other sticky elements obscure focused items.
2.4.13 Focus Appearance (Level AA, 2.2 only)	Web: Supports	2px outline at 2px offset provides focus indicator area of `4W+4H+48`, exceeding the required `4(W+H)`. Focus ring contrast meets 3:1 against adjacent colors, including white override on dark backgrounds.
2.5.7 Dragging Movements (Level AA, 2.2 only)	Web: Supports	All four drag-and-drop surfaces (module reorder, page reorder, module files, resources tab files) have Move Up/Move Down button pairs as single-pointer alternatives. `aria-live` region announces move results.
2.5.8 Target Size (Minimum) (Level AA, 2.2 only)	Web: Supports	MUI theme enforces 44px minimum touch targets, exceeding the 24px requirement. Small icon buttons use `size="small"` (40px), still exceeding the minimum.
3.1.2 Language of Parts (Level AA)	Web: Supports	Platform is English-only. AI-generated content is prompted in English. No foreign-language content sections exist.
3.2.3 Consistent Navigation (Level AA)	Web: Supports	Header navigation and sidebar are in consistent positions across all pages. Shared `AppLayout` component ensures consistency.

Criteria	Conformance Level	Remarks and Explanations
3.2.4 Consistent Identification (Level AA)	Web: Supports	Icons, buttons, and components use consistent labels and appearance across the application via a shared component library.
3.2.6 Consistent Help (Level AA, 2.2 only)	Web: Supports	AI Mentor chat is accessible from a consistent location within course pages. Help/support contact is consistently available in account settings.
3.3.3 Error Suggestion (Level AA)	Web: Supports	Validation errors provide specific guidance (e.g., "Password must be at least 8 characters"). Field-level error messages describe how to correct the input.
3.3.4 Error Prevention (Legal, Financial, Data) (Level AA)	Web: Supports	Course deletion requires a confirmation dialog. Quiz submission includes a review step. Enrollment actions are reversible.
3.3.7 Redundant Entry (Level AA, 2.2 only)	Web: Supports	Course creation wizard preserves state across steps. Signup does not re-ask for previously provided information. Account settings pre-populate known values.
3.3.8 Accessible Authentication (Minimum) (Level AA, 2.2 only)	Web: Supports	Cloudflare Turnstile uses passive bot-detection (no cognitive puzzle such as image grids or text transcription). No `onPaste` handlers block copy-paste. All password fields have correct `autoComplete` tokens for password manager autofill.
4.1.3 Status Messages (Level AA, 2.1 and 2.2)	Web: Supports	Toast notifications use live regions. Quiz timer uses

Criteria	Conformance Level	Remarks and Explanations
		`aria-live="assertive"`. Form success/error states are announced without focus change. Loading indicators use `role="status"`.

Table 3: Success Criteria, Level AAA

Level AAA criteria are not in scope for this report. All Level AAA criteria are **Not Evaluated**.

Revised Section 508 Report

Chapter 3: Functional Performance Criteria (FPC)

Criteria	Conformance Level	Remarks and Explanations
302.1 Without Vision	Supports	Full screen reader support verified with VoiceOver and NVDA. All content, controls, and status messages are programmatically exposed.
302.2 With Limited Vision	Supports	Content reflows at 400% zoom. Text spacing adjustable without loss. High contrast mode supported via `prefers-contrast: high` media query.
302.3 Without Perception of Color	Supports	Color is never the sole means of conveying information. All charts have data table alternatives. Status indicators use text labels and icons.
302.4 Without Hearing	Supports	All embedded videos are restricted to captioned content. No audio-only content. Caption status displayed at instructor embed time.
302.5 With Limited Hearing	Supports	See 302.4. YouTube

Criteria	Conformance Level	Remarks and Explanations
		captions are user-configurable.
302.6 Without Speech	Not Applicable	Speech input is an optional feature, not required for any functionality. All operations have keyboard/pointer alternatives.
302.7 With Limited Manipulation	Supports	All functionality keyboard-accessible. Drag-and-drop has button alternatives. Touch targets meet 44px minimum.
302.8 With Limited Reach and Strength	Supports	Web application — no physical reach or strength requirements.
302.9 With Limited Language, Cognitive, and Learning Abilities	Supports	Clear heading hierarchy, consistent navigation, descriptive labels, error prevention with confirmation dialogs, and no time pressure (20-Hour Exception on session; Essential Exception on quiz timers with accessible warnings).

Chapter 4: Hardware

Not Applicable — Learnvelo is a web application and does not include hardware components.

Chapter 5: Software

Criteria	Conformance Level	Remarks and Explanations
501.1 Scope — Incorporation of WCAG 2.0 AA	See WCAG 2.x section	Conformance reported in Tables 1 and 2 above.
502 Interoperability with Assistive Technology	Not Applicable	Learnvelo is a web application, not platform software. Assistive technology interoperability is provided through standard

Criteria	Conformance Level	Remarks and Explanations
		web technologies (HTML, ARIA) and verified via screen reader testing.
503 Applications	Not Applicable	Learnvelo is a web application accessed through a browser, not a native software application.
504.2 Content Creation or Editing	Supports	Instructor authoring tools (MDXEditor, course creation wizard) produce accessible web content. Charts include text alternatives. Images require alt text. MDXEditor custom dialogs implement ARIA dialog pattern.

Chapter 6: Support Documentation and Services

Criteria	Conformance Level	Remarks and Explanations
602.2 Accessibility and Compatibility Features	Supports	Product documentation describes accessibility features including keyboard shortcuts, screen reader compatibility, and available alternatives.
602.3 Electronic Support Documentation	Supports	Support documentation is delivered as web content conforming to WCAG 2.2 AA.
602.4 Alternate Formats for Non-Electronic Support Documentation	Not Applicable	All support documentation is electronic (web-based).
603.2 Information on Accessibility and Compatibility Features	Supports	Accessibility information is available through the public accessibility statement and this conformance report.
603.3 Accommodation of Communication Needs	Supports	Support is available via email. Accessible web-based communication channels are provided.

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Clause 4: Functional Performance Statements (FPS)

Criteria	Conformance Level	Remarks and Explanations
4.2.1 Usage without vision	Supports	See Section 508 FPC 302.1.
4.2.2 Usage with limited vision	Supports	See Section 508 FPC 302.2.
4.2.3 Usage without perception of colour	Supports	See Section 508 FPC 302.3.
4.2.4 Usage without hearing	Supports	See Section 508 FPC 302.4.
4.2.5 Usage with limited hearing	Supports	See Section 508 FPC 302.5.
4.2.6 Usage with no or limited vocal capability	Not Applicable	See Section 508 FPC 302.6.
4.2.7 Usage with limited manipulation or strength	Supports	See Section 508 FPC 302.7.
4.2.8 Usage with limited reach	Supports	See Section 508 FPC 302.8.
4.2.9 Minimize photosensitive seizure triggers	Supports	No content flashes more than 3 times per second. Animations gated by `prefers-reduced-motion`.
4.2.10 Usage with limited cognition, language or learning	Supports	See Section 508 FPC 302.9.
4.2.11 Privacy	Supports	Accessibility features (screen reader output, magnification, high contrast) do not expose private information beyond what is visible on screen.

Clause 5: Generic Requirements

Criteria	Conformance Level	Remarks and Explanations
5.2 Activation of accessibility features	Not Applicable	Learnvelo is a web application. Accessibility features are provided through browser and operating system settings.

Criteria	Conformance Level	Remarks and Explanations
5.3 Biometrics	Not Applicable	No biometric authentication is used.
5.4 Preservation of accessibility information during conversion	Not Applicable	The product does not convert documents between formats.
5.5 Operable parts	Not Applicable	No hardware operable parts.
5.6 Locking or toggle controls	Not Applicable	No hardware locking or toggle controls.
5.7 Key repeat	Not Applicable	Key repeat is controlled by the operating system, not the web application.
5.8 Double-strike key acceptance	Not Applicable	Controlled by the operating system.
5.9 Simultaneous user actions	Supports	No functionality requires simultaneous user actions. All interactions are single-action.

Clause 6: ICT with Two-Way Voice Communication

Not Applicable — Learnvelo does not include two-way voice communication features.

Clause 7: ICT with Video Capabilities

Criteria	Conformance Level	Remarks and Explanations
7.1.1 Captioning playback	Supports	YouTube embedded player provides built-in caption display and controls.
7.1.2 Captioning synchronization	Supports	Caption synchronization is handled by YouTube's player.
7.1.3 Preservation of captioning	Not Applicable	The product does not transcode or convert video content.
7.2 Audio description technology	Not Applicable	All video content is supplementary; text-based reading pages serve as the alternative.
7.3 User controls for captions and audio description	Supports	YouTube player provides user controls for caption display, language selection,

Criteria	Conformance Level	Remarks and Explanations
		and font size.

Clause 8: Hardware

Not Applicable — Learnvelo is a web application and does not include hardware.

Clause 9: Web

Learnvelo is a web application. See WCAG 2.x Report (Tables 1 and 2) for full conformance details.

Clause 10: Non-Web Documents

Not Applicable — Learnvelo does not produce or deliver non-web documents.

Clause 11: Software

Criteria	Conformance Level	Remarks and Explanations
11.1.x (WCAG criteria)	See WCAG 2.x section	Learnvelo is a web application. All applicable software criteria map to the WCAG success criteria reported in Tables 1 and 2.
11.5 Interoperability with assistive technology	Supports	Standard web technologies (HTML5, WAI-ARIA) ensure interoperability with assistive technologies. Verified with VoiceOver and NVDA.
11.6 Documented accessibility usage	Supports	Accessibility features and usage are documented in the public accessibility statement.
11.7 User preferences	Supports	The application respects operating system and browser preferences for reduced motion (`prefers-reduced-motion`), high contrast (`prefers-contrast: high`), and text size.
11.8.1 Content technology	Supports	Content authored through the platform uses standard web technologies (HTML,

Criteria	Conformance Level	Remarks and Explanations
		CSS) that support accessibility.
11.8.2 Accessible content creation	Supports	Instructor authoring tools produce accessible web content. AI-generated content includes alt text prompts, chart descriptions, and captioned video selection. MDXEditor custom dialogs implement full ARIA dialog pattern.

Clause 12: Documentation and Support Services

Criteria	Conformance Level	Remarks and Explanations
12.1.1 Accessibility and compatibility features	Supports	Product documentation describes accessibility features.
12.1.2 Accessible documentation	Supports	Documentation is delivered as accessible web content.
12.2.2 Information on accessibility and compatibility features	Supports	Accessibility information is available through the public accessibility statement and this conformance report.
12.2.3 Effective communication	Supports	Support available via email. Web-based communication channels are accessible.
12.2.4 Accessible documentation	Supports	See 12.1.2.

Clause 13: ICT Providing Relay or Emergency Service Access

Not Applicable — Learnvelo does not provide relay or emergency service access.

Legal Disclaimer

This Accessibility Conformance Report is provided for informational purposes and represents the accessibility status of Learnvelo at the time of evaluation (March 2026). Accessibility conformance is an ongoing effort, and the product is subject to updates that may affect conformance. This report does not constitute a warranty or guarantee of

accessibility. For questions about accessibility or to report issues, contact support@learnvelo.com.