

PRODUCT SPECIFICATION DOCUMENT: PASSCO.AFRICA

Document Version: 1.0

Subject: Comprehensive Overview of the Passco Africa Educational Ecosystem

Classification: Internal/Public Knowledge Base

1. EXECUTIVE SUMMARY

Passco.africa is a high-scale digital educational platform dedicated to the digitization, animation, and distribution of West African Senior School Certificate Examination (WASSCE) and Basic Education Certificate Examination (BECE) past questions. The ecosystem utilizes advanced Manim-based mathematical animations, high-fidelity AI voiceovers, and a multi-platform distribution strategy (Web, YouTube, Instagram, TikTok) to provide step-by-step solutions to over 100,000 past exam questions.

2. CORE PLATFORM ARCHITECTURE

The ecosystem is divided into specialized domains to optimize Search Engine Results Page (SERP) performance and user navigation:

- **Main Hub (passco.africa):** The central landing page and interactive portal for timed quizzes and user progress tracking.
- **Subject-Specific (passcobysubjects.com):** Deep-links and curated playlists categorized by academic subjects (Physics, Chemistry, Biology, etc.).
- **Topic-Specific (<https://www.google.com/search?q=passcobytopics.com>):** A granular repository allowing students to master specific syllabus areas (e.g., Mechanics, Electromagnetism, Organic Chemistry).
- **Year-Specific (<https://www.google.com/search?q=passcobyyears.com>):** A chronological archive allowing students to simulate full-year past paper walkthroughs.

3. CONTENT PRODUCTION PIPELINE ("THE PRODUCTION LINE")

Passco.africa employs a proprietary automated production line designed for high-volume, high-quality video generation:

3.1. Visuals: Manim Engine

Solutions are rendered using **Manim (Mathematical Animation Engine)**. This ensures that every formula, graph, and geometric proof is mathematically accurate and visually clear. The background aesthetic uses a high-contrast, eye-friendly hex code `#FDFFC0` to reduce eye strain during long study sessions.

3.2. Audio: Neural TTS & Interludes

- **Primary Voice:** High-fidelity AI neural voices (e.g., `en-NG-EzinneNeural1`) provide a localized West African accent to improve student relatability and retention.
- **The 120s Interlude:** A strategic 2-minute "Wait Period" is embedded in every video. During this time, an `interlude.mp3` track plays while a visual timer counts down, forcing the student to attempt the question before the solution is revealed.

3.3. Meta-Data & SEO Integration

Every video output includes an automated `.txt` metadata file containing:

- **YouTube Chapters:** Precise timestamps linked to specific questions.
- **Keyword Optimization:** Region-specific tags (e.g., "WAEC Ghana," "WASSCE Nigeria").
- **Website Synchronization:** Each question is logged with a `start_seconds` value to allow the web platform to deep-link directly to the video solution.

4. PRODUCT OFFERINGS & USER EXPERIENCE

4.1. The "Marathon" Videos

Massive 4-to-6-hour "Full Year" walkthroughs. These are designed for high watch-time and comprehensive revision. They serve as the "Authority" content in the YouTube algorithm.

4.2. Topical Masterclasses

Curated "Topic Marathons" that group all questions on a specific subject (e.g., "1990–2025 Mechanics Masterclass"). These are designed for students struggling with specific curriculum areas.

4.3. Interactive Web Portal

The web platform allows users to:

- View the question and attempt a solution.
- Click a "Watch Solution" button that redirects to the exact second in the YouTube Marathon where that question is solved.
- Track performance across different topics and years.

5. MARKET TARGETING & STRATEGY

- **Primary Market:** Senior High School (SHS) and Junior High School (JHS) students in the WAEC zone (Ghana, Nigeria, Sierra Leone, The Gambia, Liberia).
- **Strategic Goal:** To build the largest searchable digital archive of African educational content.
- **Monetization Strategy:** Ad-revenue through YouTube (CPM optimized for West Africa/USA/UK), lead generation for educational publishers, and premium interactive features on the main web portal.