

Design / Functional Specification Document for the Blog Section

Here's a **short developer version** (implementation-focused) + **wireframe images** to show how each page should look.



Developer Short Spec — Blog Module

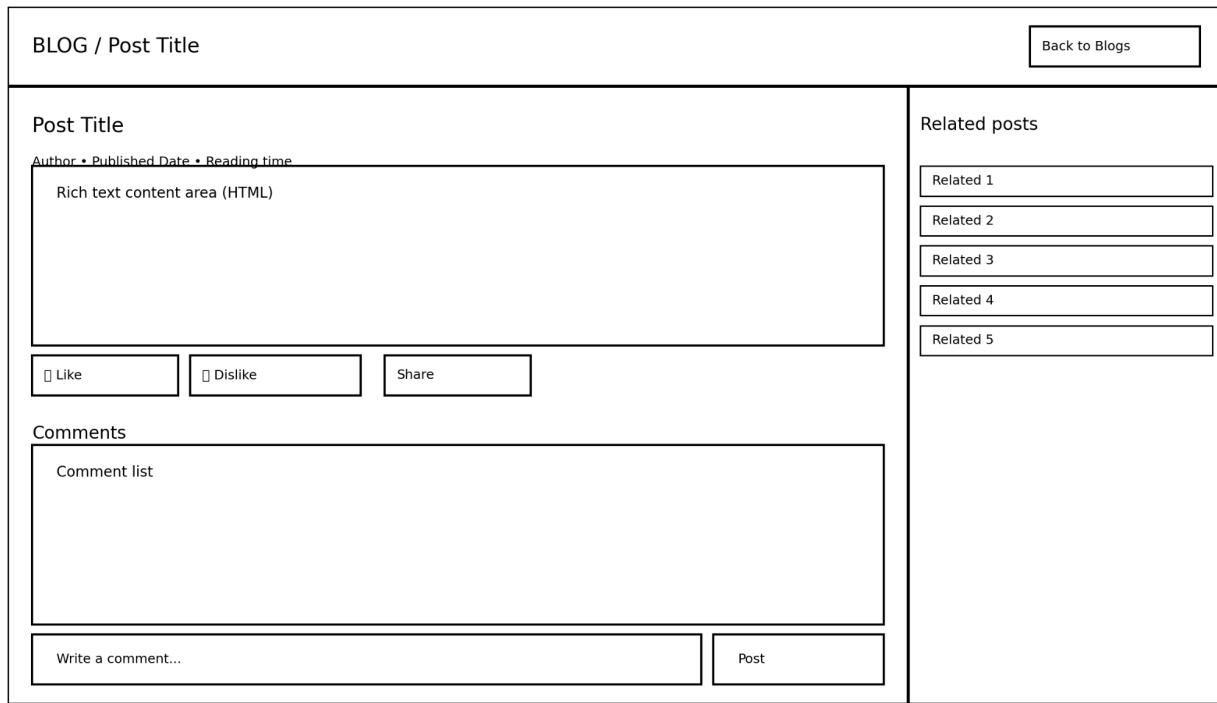
1) Pages & URLs

1. **Blog Listing (Landing)**
 - o `GET /blog`
 - o Must show:
 - Top actions: **Write a Blog**, **Subscribe**, **Search**

- Main area: **blog cards feed** (most of the page width)
- Right sidebar: **Archive index** (Year → Month)

2. Blog Detail

- `GET /blog/{slug}`
- Must show:
 - Blog title + meta (author, date)
 - Blog content (rendered sanitized HTML)
 - **Like / Dislike**
 - **Comments** (list + add comment)
 - Related posts (optional but recommended)



3. Write a Blog

- GET /blog/write
- Must show:
 - Title, excerpt, rich text editor body
 - Submit triggers **email OTP + mobile capture**
 - On verified submission → blog stored as **PENDING_APPROVAL**

Write a Blog

Title (required)

Excerpt (optional)

Rich Text Editor

Toolbar: H1 H2 B I U • • Link Image Quote Code

Author details on submit (email OTP)

4. Admin Moderation

- GET /admin/blogs
- Pending queue + preview
- Actions: **Approve / Reject (reason required)** / Edit (optional setting)

| Admin • Blog Moderation | |
|--|---|
| <p>Pending submissions</p> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;">Submission #100 • Title • Email</div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;">Submission #101 • Title • Email</div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;">Submission #102 • Title • Email</div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;">Submission #103 • Title • Email</div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;">Submission #104 • Title • Email</div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;">Submission #105 • Title • Email</div> | <p>Selected submission preview</p> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;">Title / Meta Content preview</div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> Edit Approve Reject </div> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;">Reject reason / notes</div> |

2) Core UI Requirements

Blog Listing Page

- **Search bar** filters published blogs (title + excerpt at minimum)
- **Archive index on right side**
 - Expandable Year → Month
 - Clicking month filters feed
- Sorting (recommended): Recent (default), Popular (by likes), Oldest

Blog Detail Page

- Like/dislike toggle behavior:
 - If user likes then dislikes → switch
- Comments:

- Name + comment required (email optional or required as per your choice)
- Anti-spam: rate-limit + honeypot/CAPTCHA (recommended)

Write a Blog

- Rich editor features: headings, bold/italic, lists, links, quotes, image (optional)
- On Submit:
 - Collect **email** + **mobile** (required)
 - **Email OTP verification required**
 - After OTP success: create BlogPost in **PENDING**

3) Workflow (Submission → Publish)

1. User writes blog → clicks Submit
2. System asks **Email + Mobile**
3. Send OTP to email → user verifies OTP
4. Save blog as **PENDING_APPROVAL**
5. Admin approves → status **PUBLISHED** + **published_at** set
6. Blog appears on **/blog** and **/blog/{slug}**

4) Suggested Data Models (minimum)

BlogPost

- **id, title, slug, excerpt**

- `content_html` (sanitized)
- `author_name` (optional), `author_email`, `author_mobile`
- `status: DRAFT | PENDING | PUBLISHED | REJECTED`
- `submitted_at, published_at`
- `rejection_reason` (nullable)

Reaction

- `blog_id, visitor_key` (cookie token), `reaction_type` (LIKE/DISLIKE), `created_at`
- (Optional) `ip_hash` for throttling

Comment

- `blog_id, name, email?, comment_text, status` (VISIBLE/HIDDEN/PENDING), `created_at`

OTPVerification

- `email, otp_hash, purpose, expires_at, attempts, verified_at`
-

5) API Endpoints (example)

Public

- `GET /api/blogs?search=&year=&month=&sort=&page=`
- `GET /api/blogs/archive` → returns year/month counts for sidebar
- `GET /api/blogs/{slug}`

- `POST /api/blogs/{id}/reaction` → toggle like/dislike
- `GET /api/blogs/{id}/comments`
- `POST /api/blogs/{id}/comments`

Submission (OTP)

- `POST /api/blogs/submission/start` → sends OTP, stores draft payload server-side or returns token
- `POST /api/blogs/submission/verify` → verifies OTP
- `POST /api/blogs/submission/finish` → creates BlogPost in **PENDING**

Admin

- `GET /api/admin/blogs?status=pending`
 - `POST /api/admin/blogs/{id}/approve`
 - `POST /api/admin/blogs/{id}/reject` (reason required)
 - `PATCH /api/admin/blogs/{id}` (optional)
-

6) Security / Quality Notes (must)

- Sanitize HTML output to prevent XSS (very important)
- OTP:
 - 6 digits, expires 10 min, max 5 attempts, resend cooldown
- Rate limits:
 - reactions + comments

- SEO:
 - slug URLs + meta tags + sitemap for published blogs

Below is a detailed **Design / Functional Specification Document** for the **Blog Section** of your website, based exactly on your requirements, with a few “appropriate links/features” added that are standard for a professional blog system.

1) Purpose and Scope

Purpose

Build a complete **Blog module** for your website that allows:

- Visitors to browse and search blogs.
- Visitors to filter blogs using a **Year → Month index on the right side**.
- Users to read a blog and **like/dislike, comment**, and share.
- Users to **write a blog** using a rich text editor.
- On submission, user provides **Email + Mobile**, with **Email OTP verification**.
- Submitted blogs go into **Admin Approval** workflow.
- After approval, blog is published and visible publicly.

Scope Included

- Blog listing page
- Blog details page (reading page)
- Blog creation page (Write a blog)
- Subscribe feature
- Search + archive index by year/month
- Likes/dislikes, comments
- Admin moderation panel (approve/reject/edit)
- Email OTP verification during blog submission

Scope Excluded (optional later)

- User accounts / login (unless you want)
 - Paid subscriptions
 - Multi-language blogs
 - AI writing assistant
-

2) Roles and Permissions

2.1 Roles

1. **Visitor (Public User)**
 - View blog list and blog details
 - Search blogs
 - Filter by Year/Month from right-side index
 - Subscribe
 - Like/Dislike (with anti-spam controls)
 - Comment (with anti-spam controls)
2. **Contributor (No login required; identity via email OTP)**
 - Write a blog
 - Submit blog for approval (must verify email OTP)
3. **Admin**
 - View submitted blogs (pending queue)
 - Approve / Reject (with reason)
 - Edit before publishing (optional setting)
 - Manage comments (hide/delete/approve)
 - Moderate likes/dislikes anomalies
 - Manage subscribers (export/unsubscribe)

Note: If you later add login, “Contributor” can become a registered user.

3) Navigation / Information Architecture

3.1 Blog Landing Page (when user clicks “Blog”)

URL: [/blog](#)

Top area (header/toolbar)

- Button: **Write a Blog**
- Link/Button: **Subscribe**

- Search bar: **Search blogs**
- Optional links:
 - “Most Recent”
 - “Most Liked”
 - “Categories” (optional)
 - “About Blog” / “Guidelines” (recommended for submission rules)

Main content area (most of the page)

- Blog cards/grid/list with pagination or infinite scroll

Right-side panel (fixed or sticky)

- **Archive Index:**
 - Year list (expand/collapse)
 - Month list under each year
 - Clicking year/month filters blog list accordingly
 - Example:
 - 2026
 - Jan (12)
 - Feb (7)
 - 2025
 - Dec (20)
-

4) Page-Level Requirements

4.1 Blog Listing Page (Blog Home) – /blog

Layout

A) Top Toolbar

- “Write a Blog” (primary CTA)
- “Subscribe”
- Search box with placeholder: “Search by title, keyword...”
- Optional sort dropdown: Recent / Popular / Oldest

B) Main Blog Feed

Each blog shown as a card:

- Title
- Featured image (optional)

- Author name (as provided)
- Publish date
- Short excerpt
- Tags/categories (optional)
- Like count, comment count
- “Read more” click opens blog details

C) Right-side Archive Index

- Collapsible tree: Year → Month
- Shows counts per month
- Selecting a month filters feed without page reload (preferred)

Functional Requirements

- Default view shows **latest published blogs**
 - Search returns matching published blogs
 - Filters work together:
 - Search + Year/Month filter + sort
 - Pagination (recommended):
 - Page size 10–20
 - Or infinite scroll + “Load more”
-

4.2 Blog Details Page – `/blog/{slug-or-id}`

Layout

- Blog title
- Author + publish date
- Reading time (optional)
- Content body (rich text output)
- Tags (optional)
- Share buttons (optional)

Engagement Features

1. **Like / Dislike**
 - Two buttons: Like, Dislike
 - Show counts
 - User can toggle:
 - If liked then clicks dislike → remove like, add dislike
 - If disliked then clicks like → remove dislike, add like

- Anti-abuse:
 - Rate limit
 - Store by fingerprint/cookie + IP throttling (and optional email if you prefer)
 - 2. **Comments**
 - Comment list (latest first or threaded — your choice)
 - Add comment form:
 - Name (required)
 - Email (optional or required)
 - Comment text (required)
 - Captcha / honeypot anti-spam (recommended)
 - Comments moderation:
 - Either auto-publish with spam filtering OR admin approval
 - Recommended: **auto publish + admin ability to hide**, plus spam detection
 - 3. **Related Blogs**
 - Show 4–6 related posts (same month/tags or most recent)
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4.3 Write a Blog Page – [/blog/write](#)

Rich Text Editor Requirements

- Title (required)
- Short summary/excerpt (optional but recommended)
- Featured image upload (optional)
- Rich text body (required)
 - Headings (H1/H2/H3)
 - Bold/italic/underline
 - Bullets/numbered lists
 - Quote blocks
 - Links
 - Insert image (optional; admin-controlled)
 - Code block (optional)
- Tags/categories (optional)
- Preview (recommended)
- Submit button

Submission Identity Capture (on Submit)

When user clicks **Submit**:

- Collect:
 - Email (required)
 - Mobile number (required)

- Name (recommended)
- **Email OTP verification required**
 - Send OTP to email
 - Ask user to enter OTP
 - Verify OTP
 - Only then accept final submission

Post-Submission Status

After OTP success:

- Blog goes to **Pending Approval**
 - Show message:
 - “Thanks! Your blog is submitted and awaiting admin approval.”
 - Provide a submission reference number (optional)
-

4.4 Subscribe Flow – **/blog/subscribe (or modal)**

Fields

- Email (required)
- Name (optional)
- Preferences (optional):
 - Weekly digest / Monthly digest / New post alerts
- Email OTP verification (recommended, even if not required)

Actions

- Subscribe
 - Unsubscribe link in every email
-

5) Admin Approval Workflow

5.1 Admin Panel – **/admin/blogs**

Tabs

- Pending
- Published

- Rejected
- Drafts (optional)
- Comments moderation
- Subscribers

Pending Queue Actions

- View submission details (title, author details, email, mobile, content)
- Approve
- Reject (must enter reason)
- Edit before approve (optional setting)
- Set publish date (default = now)
- Set slug (auto or manual)

Notifications

- On approval → email to contributor: “Published”
 - On rejection → email with reason and optionally allow resubmission
-

6) Data Model (Suggested)

6.1 BlogPost

- `id` (UUID/Auto)
- `title`
- `slug` (unique)
- `excerpt`
- `content_html` (stored sanitized HTML)
- `content_json` (optional, if editor outputs JSON e.g. TipTap)
- `featured_image_url`
- `author_name`
- `author_email`
- `author_mobile`
- `status` (DRAFT / PENDING / PUBLISHED / REJECTED)
- `submitted_at`
- `published_at`
- `approved_by_admin_id`
- `rejection_reason`
- `year, month` (derived from published_at for fast archive queries)
- `tags` (array) (optional)
- `views_count` (optional)

6.2 BlogReaction

- `id`
- `blog_id`
- `reaction_type` (LIKE / DISLIKE)
- `visitor_key` (cookie/fingerprint token)
- `ip_hash` (optional)
- `created_at`

6.3 BlogComment

- `id`
- `blog_id`
- `name`
- `email` (optional)
- `comment_text`
- `status` (VISIBLE / HIDDEN / PENDING)
- `created_at`
- `ip_hash` (optional)

6.4 Subscriber

- `id`
- `email`
- `name`
- `status` (ACTIVE / UNSUBSCRIBED)
- `verified` (true/false)
- `created_at`
- `unsubscribed_at`

6.5 OTPVerification

- `id`
- `email`
- `otp_hash`
- `purpose` (BLOG_SUBMISSION / SUBSCRIBE)
- `expires_at`
- `attempts_count`
- `verified_at`

7) API Endpoints (Example)

Public

- `GET /api/blogs?search=&year=&month=&sort=&page=`
- `GET /api/blogs/archive`
Returns year→month counts for right-side index
- `GET /api/blogs/{slug}`
- `POST /api/blogs/{id}/reaction` (like/dislike toggle)
- `GET /api/blogs/{id}/comments`
- `POST /api/blogs/{id}/comments`

Submission

- `POST /api/blogs/submission/start`
 - Inputs: title, content, etc. + email, mobile
 - Sends OTP to email
- `POST /api/blogs/submission/verify-otp`
 - Inputs: email, otp
 - Marks verified
- `POST /api/blogs/submission/finish`
 - Creates blog post in **PENDING**

Alternative: single endpoint that triggers OTP, then “Verify OTP” screen, then final submission.

Subscribe

- `POST /api/blogs/subscribe/start` (send OTP)
- `POST /api/blogs/subscribe/verify-otp` (activate)

Admin (protected)

- `GET /api/admin/blogs?status=pending`
 - `POST /api/admin/blogs/{id}/approve`
 - `POST /api/admin/blogs/{id}/reject`
 - `PATCH /api/admin/blogs/{id}` (edit)
 - `POST /api/admin/comments/{id}/hide`
-

8) Search, Archive Index, and Sorting

8.1 Search

- Search fields:

- Title
- Excerpt
- Content (optional, expensive)
- Tags (optional)
- Minimum:
 - Title + excerpt is enough for performance
- Suggested:
 - Use full-text search if DB supports it

8.2 Archive Index

- Built from `published_at`
- Right side shows:
 - Year list
 - Each year expands to months
 - Show counts per month
- Clicking filters blog feed

8.3 Sorting Options

- Most Recent (default)
 - Most Liked
 - Most Commented (optional)
 - Oldest
-

9) Security, Validation, and Anti-Abuse

9.1 Email OTP

- OTP length: 6 digits
- OTP expiry: 10 minutes
- Max attempts: 5
- Resend OTP cooldown: 30–60 seconds
- Store only **hashed OTP**
- Log verification attempts

9.2 Content Safety

- Sanitize blog HTML to prevent XSS
- Allow only safe tags/attributes
- Validate uploaded images (type/size)

9.3 Spam protection

- Rate-limit:
 - Comments per IP per minute
 - Reactions per visitor per minute
- Honeypot field or CAPTCHA for comments
- Admin ability to hide comments quickly

9.4 Privacy

- Email and mobile collected only for submission and moderation.
 - Must be referenced in Privacy Policy:
 - Why collected, where stored, retention period, how user can request deletion.
-

10) Non-Functional Requirements (NFR)

Performance

- Blog list page load < 2 seconds for normal load
- Archive index should be cached
- Use pagination

Availability

- 99.5% uptime target (typical)

SEO

- Friendly URLs: [/blog/how-to-prepare-for-igcse-physics](#)
- Server-render or pre-render pages if possible
- Meta tags:
 - title, description, canonical, OG tags
- Sitemap: include published blogs
- Structured data (Article schema) recommended

Accessibility

- Keyboard navigation
 - Proper labels for search and forms
 - Contrast-compliant UI
-

11) UI/UX Notes (Practical)

Blog cards arrangement (recommended)

- Two-column grid on desktop
- Single column on mobile
- Right archive index becomes:
 - collapsible drawer on mobile, or moves below search

“Write a blog” UX

- If user closes during OTP step: save draft in local storage (optional)
- Show clear rules:
 - prohibited content, plagiarism warning, etc.

12) Email Templates (Minimum)

1. OTP Email

- Subject: “Your OTP for Blog Submission”
- Body: OTP + expiry + ignore message note

2. Submitted (Pending)

- Subject: “We received your blog submission”
- Body: reference ID, next steps

3. Approved & Published

- Subject: “Your blog is now live!”
- Body: blog link

4. Rejected

- Subject: “Update on your blog submission”
- Body: rejection reason + resubmission suggestion

13) Admin Rules / Settings (Recommended)

Config toggles:

- Allow admin edit before publishing: Yes/No
- Comments require approval: Yes/No
- Allow images in blog editor: Yes/No
- Reaction system: cookie-based only OR email-based
- Auto-unpublish feature: Yes/No

14) Acceptance Criteria Checklist

Blog Listing Page

- Shows blogs occupying most of the page area
- Right-side year/month index filters instantly
- Search works with keywords
- “Write a blog” and “Subscribe” visible

Blog Read Page

- Like/dislike works with counts and toggle behavior
- Comments can be posted and displayed
- Admin can hide abusive comments

Blog Submission

- Rich text editor works
 - On submit, email + mobile required
 - Email OTP verification required before accepting submission
 - Post goes to admin approval queue
 - Approved post becomes publicly visible
-