<u>DATAFIED SaaS LMS PRODUCTS</u>

1.0   Onboarding Flow

1.1 Company Onboarding (eg Datafied, Miva, etc)

Representatives of these companies get to our landing page. Let's assume it would be called datfiedlms.com.

1.1.1   Click "Get Started" or "Start Free Trial". This page redirects the user to the signup page. For instance, datfiedlms.com/signup.

1.1.1 Organization Registration Form

Fields & Validation

Field	Type	Required	Notes
Full Name	Text	Yes	Person initiating the sign-up
Work Email	Email	Yes	Must be unique and verified
Organization Name	Text	Yes	e.g., "Datafied"
Subdomain	Text	Yes	e.g., datafiedlms.com, auto-check availability
Phone Number	Text	Optional	For support follow-ups
Password	Password	Yes	Min 8 chars, strength meter

| Confirm Password | Password | Yes | Must match |

1.1.2 Validation Logic Flow

- Validate subdomain is unique.
- Email must be from a valid corporate domain.
- Backend generates **tenantId** upon successful submission.

1.1.3 On Submission

- Create tenant entry (multitenant setup — schema/row-level).
- Provision default user roles (Admin, Instructor).
- Generate subdomain.
- Send verification email.

1.1.4 Email Verification

- We generate and send a 6 digit OTP to the user.
- The user inputs the 6 digit for verification.
- On the backend, the otp is tied for a purpose — an otp for email generation cannot be used for f***orgot password*** or anything else. Email and otp are also verified.
- On verification, tenant is activated, verified and redirected to initial setup wizard.

1.1.5 Initial Setup Wizard (on first login)

1.1.5.1 Organizational Branding (Organization configuration)

Field	Type
Upload Colour	Image upload
Primary Color	Color picker
Accent Color	Color Picker
Timezone	Dropdown

1.1.5.2 Invite Team Members

Field	Type	Notes
Email Address	Text	Add multiple
Role	Dropdown	Instructor/Learner

- There is an option to skip and do later
- Invitation emails sent with temporary passwords or magic links.

1.1.5.3 Select Subscription Plan

Free Trial:

- Default 14-day trial (option for 7-day trial)

- Trial is non-renewable, non-extendable after expiry

- Features available during trial: all except AI features (optional)

Plans:

1. Starter – Up to 50 students, basic LMS features

2. Pro – Up to 500 students, advanced LMS + basic AI features

3. Enterprise – Unlimited students, full LMS + AI + API access

Payment Options:

- Monthly or Annual billing

- Annual = 20% discount

- Option for Custom Plan (via sales contact)

Acceptance Criteria:

- Quota enforcement based on plan tier

- Trial auto-expires after 14 or 7 days, whichever is selected

- Monthly/annual billing is selectable at checkout

- Custom plan initiates support/sales workflow

- Invoices are downloadable by tenant admin

1.1.5.4 Tenant is Ready

User is redirected to their new dashboard at datafied.datafiedlms.com/dashboard

- Dashboard shows:

  - "Finish Setting Up Organization"

  - "Create Your First Course"

  - "Invite Learners"

  - "Access Reports"

1.1.5.5 Backend Events Triggered During Onboarding

1. Tenant Creation

   - Assign tenantId, allocate storage quota, setup schema

2. Audit Log Init

   ○ Record tenantCreated, userVerified, planSelected

3. Default Settings

   ○ Email templates, grading configs, quiz settings

4. Analytics Setup

   ○ Track usage from day 1 via Mixpanel or custom logs

5. Webhook Notifications

   ○ Send org.created event for downstream services (billing, CRM)

2.0 Tenant User Management Module – Detailed Specification

Module Scope

Allows a Tenant Admin to manage users (Instructors & Learners) within their organization's LMS environment.

2.1 Invite Team Members

Endpoint/UI Action: POST /tenant/users/invite

Fields & Validations:

Field	Type	Validation Rules
First Name	Text	Required, max 50 chars
Last Name	Text	Optional, max 50 chars
Email Address	Email	Required, must be unique within tenant, valid email format
Role	Dropdown	Required, values: Instructor, Learner
Custom Message	TextArea	Optional, max 250 chars

Logic:

- Sends an invitation email with an activation link.

- User is created with status PENDING.

- Invite expires in 7 days.

Acceptance Criteria:

- Email must not already exist in the tenant scope.

- Invitation email includes activation link and temporary token.

- Status set to ACTIVE after account is claimed.

2.2   Forgot Password

Endpoint: POST /auth/forgot-password

Flow:

- User submits registered email.

- Tokenized reset link is sent (valid for 60 mins).

- Link opens a reset password form.

Reset Fields & Validation:

Field	Validation Rules
New Password	Required, min 8 chars, at least 1 number
Confirm Password	Must match New Password

Acceptance Criteria:

- Only registered and active users can reset password.

- Token expires after 60 minutes or after use.

2.3   View Users

Endpoint: GET /tenant/users

Response:

- Paginated list with filters (role, status)

- Fields: Name, Email, Role, Status (Active, Suspended, Pending), Last Login

Acceptance Criteria:

- Tenant admin can filter by status and role.

- Learners and Instructors are scoped to their tenant only.

2.4   Edit User Profile

Endpoint: PUT /tenant/users/{userId}

Fields Editable by Admin:

Field	Validation
First Name	Optional, max 50 chars

Last Name   Optional, max 50 chars

Role   Optional, valid enum

Acceptance Criteria:

- Role updates require confirmation.

- Cannot edit system-admin-managed users.

2.5   Delete User

Endpoint: DELETE /tenant/users/{userId}

Flow:

- Soft delete (set status to DELETED)

- Prevent login, hide from UI

- Reassign or delete owned resources (courses, assessments)

Acceptance Criteria:

- Deleted users no longer appear in lists.

- All their content is either reassigned or removed.

Instructor Module – Detailed Specification

This module defines all actions available to instructors within a tenant organization. Instructors are responsible for authoring content, managing learners within courses, and assessing progress.

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1. Create Course

Endpoint: POST /instructor/courses

Fields & Validations:

Field	Type	Validation
Title	Text	Required, max 100 chars
Description	Rich Text	Required, min 50 chars
Category	Dropdown	Required, must match existing categories
Access Type	Enum	Required, values: Public, Private
Pricing Type	Enum	Required, values: Free, Paid
Price (if Paid)	Decimal	Required if Paid, > 0.00
Thumbnail	File	Optional, max 2MB, jpg/png only

Acceptance Criteria:

- A course cannot be published without a title and at least one module.

- All required fields must be validated server-side.

- Drafts are saved if incomplete.

---

2. Add Course Modules

Endpoint: POST /instructor/courses/{courseId}/modules

Fields:

Field	Type	Validation
Module Title	Text	Required
Content Type	Enum	Required: Video, Text, File
Content File	File	Required if type is Video or File
Text Content	Rich Text	Required if type is Text
Order	Integer	Required, unique per course

Acceptance Criteria:

- Instructors can reorder modules.

- Each module has a unique display order.

- Only instructors of the course can add/edit modules.

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3. Publish Course

Endpoint: POST /instructor/courses/{courseId}/publish

Conditions to Publish:

- Course must have:

    - At least 1 module

    - Title and description

    - Category and access type defined

Acceptance Criteria:

- Publish button disabled until conditions are met.

- Published courses become visible in learner catalog.

---

4. Manage Enrolled Learners

Endpoint: GET /instructor/courses/{courseId}/learners

Features:

- View list of enrolled learners

- Track progress: % completed, last activity

- Remove learner (soft unenroll)

Acceptance Criteria:

- Only instructors of the course can manage enrollment.

- Learners removed cannot access content but progress is retained.

---

5. Add Quizzes to Modules

Endpoint: POST /instructor/courses/{courseId}/modules/{moduleId}/quiz

Fields:

Field	Validation
Question Text	Required

Type	Enum: MCQ, True/False, Short
Options	Required if MCQ (min 2, max 5)
Correct Answer	Required
Points	Integer, default: 1
Timer	Optional (in seconds)

Acceptance Criteria:

- Quiz cannot be saved without a valid correct answer.

- Quiz scores contribute to learner course score.

- Quizzes can be edited until course is published.

6. Grade Assignments

Endpoint: PUT /instructor/courses/{courseId}/assignments/{submissionId}/grade

Fields:

Field	Validation
Score	Required, numeric, max 100
Feedback	Optional, max 500 chars
Status	Enum: Graded, Needs Review

Acceptance Criteria:

- Only assigned instructors can grade.

- Learners receive notification upon grading.

7. Announcements

Endpoint: POST /instructor/courses/{courseId}/announcements

Fields:

Field	Validation
Title	Required, max 100 chars
Body	Required, min 20 chars
Pin	Boolean, default: false

Acceptance Criteria:

- Announcement visible to all enrolled learners.

- Pinned announcements appear first.

8. Track Course Analytics

Endpoint: GET /instructor/courses/{courseId}/analytics

Includes:

- Enrolled count

- Active learners

- Average progress

- Quiz performance chart

- Assignment grading status

Acceptance Criteria:

- Data is scoped per course and instructor.

- Analytics auto-refresh daily.

Ready to proceed with Learner module or Dashboard widget specs?

2.6   Suspend / Reactivate User

Endpoints:

- PUT /tenant/users/{userId}/suspend

- PUT /tenant/users/{userId}/activate

Logic:

- Suspended users cannot log in.

- Suspended users remain in the list with Suspended status.

Acceptance Criteria:

- Suspend action immediately blocks access.

- Reactivation sends notification to user.

2.7   Role Management

Roles Available:

- Instructor

- Learner

Permissions Matrix (Simplified):

Action	Instructor	Learner
Create Courses	Yes	No
Enroll in Courses	No	Yes
View Reports (own only)	Yes	Yes
Grade Assignments	Yes	No
Comment/Post in Courses	Yes	Yes

3.0 Instructor Module – Detailed Specification

This module defines all actions available to instructors within a tenant organization. Instructors are responsible for authoring content, managing learners within courses, and assessing progress.

3.1 Create Course

Endpoint: POST /instructor/courses

Fields & Validations:

Field	Type	Validation
Title	Text	Required, max 100 chars
Description	Rich Text	Required, min 50 chars
Category	Dropdown	Required, must match existing categories
Access Type	Enum	Required, values: Public, Private
Pricing Type	Enum	Required, values: Free, Paid
Price (if Paid)	Decimal	Required if Paid, > 0.00
Thumbnail	File	Optional, max 2MB, jpg/png only

Acceptance Criteria:

- A course cannot be published without a title and at least one module.

- All required fields must be validated server-side.

- Drafts are saved if incomplete.

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Endpoint: POST /instructor/courses/{courseId}/modules

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Module Title	Text	Required
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Order	Integer	Required, unique per course

Acceptance Criteria:

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- Each module has a unique display order.

- Only instructors of the course can add/edit modules.

3.3   Publish Course

Endpoint: POST /instructor/courses/{courseId}/publish

Conditions to Publish:

- Course must have:

    - At least 1 module

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    - Category and access type defined

Acceptance Criteria:

- Publish button disabled until conditions are met.

- Published courses become visible in learner catalog.

3.4   Manage Enrolled Learners

Endpoint: GET /instructor/courses/{courseId}/learners

Features:

- View list of enrolled learners

- Track progress: % completed, last activity

- Remove learner (soft unenroll)

Acceptance Criteria:

- Only instructors of the course can manage enrollment.

- Learners removed cannot access content but progress is retained.

3.5 Add Quizzes to Modules

Endpoint: POST /instructor/courses/{courseId}/modules/{moduleId}/quiz

Fields:

Field	Validation
Question Text	Required
Type	Enum: MCQ, True/False, Short
Options	Required if MCQ (min 2, max 5)
Correct Answer	Required
Points	Integer, default: 1
Timer	Optional (in seconds)

Acceptance Criteria:

- Quiz cannot be saved without a valid correct answer.
- Quiz scores contribute to the learner course score.
- Quizzes can be edited until the course is published.

3.6   Grade Assignments

Endpoint: PUT /instructor/courses/{courseId}/assignments/{submissionId}/grade

Fields:

Field	Validation
Score	Required, numeric, max 100
Feedback	Optional, max 500 chars
Status	Enum: Graded, Needs Review

Acceptance Criteria:

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Acceptance Criteria:

- Announcement visible to all enrolled learners.

- Pinned announcements appear first.

3.8   Track Course Analytics

Endpoint: GET /instructor/courses/{courseId}/analytics

Includes:

- Enrolled count
- Active learners
- Average progress
- Quiz performance chart
- Assignment grading status

Acceptance Criteria:

- Data is scoped per course and instructor.
- Analytics auto-refresh daily.

4.0   Instructor Course Content Management – Detailed Specification (Content Access & Progress Control)

This covers how instructors upload/manage video lessons, files, and enforce structured learning, while learners experience gated progression.

4.1   Upload Course Videos & Files

Endpoint: POST /instructor/courses/{courseId}/modules/{moduleId}/content

Content Types Supported:

- Video (mp4, hosted via CDN or embedded via Vimeo/Youtube)
- Files (PDF, PPT, DOCX, XLS, max 50MB)
- Text-based notes

Fields & Validations:

Field	Type	Validation
Content Title	Text	Required, max 100 chars
Content Type	Enum	Required: Video, File, Text

File Upload   File   Required if Video or File

Description   Text   Optional

Is Required   Boolean   Default: true

Acceptance Criteria:

- Only instructors can upload content to their modules.
- Upload failures return actionable error messages.
- Duplicate titles per module are rejected.

4.2   Learner Content Access (Video + File)

Endpoint (GET): /learner/courses/{courseId}/modules/{moduleId}/content

Frontend Behavior:

- Learners must watch video till end or click "Mark as Done" to proceedd
- Files (PDF, etc.) have a "Download" button and an optional "Mark as Done" trigger.
- UI disables next module until current content is marked complete (if required).

Logic:

- Track watchCompletionPercentage (for video)
- Track markAsDone action per content ID

Acceptance Criteria:

- Learner cannot access next module unless current required content is marked done.
- Marking done updates learner's progress.
- Downloads are logged for analytics.

4.3   Progress Control & Sequential Access

Backend Enforcement:

- Check previous module completion_status = true before unlocking next.
- Auto-unlock if non-required, or manual unlock by instructor override (optional feature).

4.4   Instructor Settings for Content Enforcement

Endpoint: PUT /instructor/courses/{courseId}/settings

Fields:

Field	Type	Description
SequentialAccess	Boolean	True = must complete previous before next
EnforceVideoCompletion	Boolean	True = must watch video to 100%
AllowDownloadableResources	Boolean	False = disables file downloads

Acceptance Criteria:

- Settings are scoped per course and persist across sessions.
- UI dynamically adapts based on instructor's config.

5.0   Learner (Student) Module – Detailed Specification

This defines all learner-facing actions for a high-quality, intuitive experience on the LMS. Designed to enforce structured learning while ensuring smooth navigation, tracking, and motivation.

5.1   Learner Dashboard

Endpoint: GET /learner/dashboard

Features:

- Active courses (progress %, next module)
- Upcoming quizzes/assignments
- Recent announcements
- Certification tracker
- Saved courses / wishlist

Acceptance Criteria:

- Personalized dashboard loads in < 1s.
- Each course shows progress ring and actionable "Continue" button.

5.2   Enroll in Course

Flow:

- Learner browses catalog (/learner/catalog)
- Clicks on a course card → Course detail page
- If access is Public and Free, can click "Enroll Now"
- If Paid, redirect to payment

Acceptance Criteria:

- Cannot re-enroll if already enrolled
- Post-payment auto-enrolls learner
- Enrollment recorded with timestamp

5.3 Course Content Access

Endpoint: GET /learner/courses/{courseId}

Features:

- Timeline view: Locked/unlocked modules
- Sticky course menu for quick nav
- Resume from last location
- Visual progress indicator

Acceptance Criteria:

- Can only access modules already unlocked
- Can see status: Completed / In Progress / Locked

5.4   Watch Video Lessons

Behavior:

- Learner must watch 100% or click "Mark as Done"
- UI disables "Next" until this is done (if required)

Backend Logic:

- Tracks watchCompletionPercent via player events
- Records timestamp of completion

Acceptance Criteria:

- Resume video from last watched time
- Disable fast-forward if strict mode enabled
- Save progress every 5 seconds

5.5   Downloadable Files & Notes

Features:

- Resource viewer with "Download" button
- PDF preview for inline view
- Notes section with bookmarking

Acceptance Criteria:

- Tracks file downloads in analytics
- Downloadable only if instructor enables it

- Optional "Mark as Read" for content completion

5.6   Take Quizzes

Endpoint: POST /learner/courses/{courseId}/quizzes/{quizId}/submit

Features:

- Timer (if enabled)
- Navigation between questions
- Save progress before submit
- Instant feedback (if allowed)

Acceptance Criteria:

- Quiz must be submitted before moving to next module (if required)
- Retake only allowed if instructor enables it
- Results stored immediately and reflected in analytics

5.7   Submit Assignments

Endpoint: POST /learner/courses/{courseId}/assignments/{assignmentId}/submit

Fields:

Field	Validation
File Upload	Required, max 20MB, PDF/DOCX/MP4 only

Comments   Optional, max 500 chars

Acceptance Criteria:

- File preview available before submit
- After submission, status = Submitted
- Can't resubmit unless allowed by instructor

5.8   Engage with Instructor & Community

Features:

- Lesson-level comments
- Ask Instructor (private message)
- Course-wide discussion forum

Acceptance Criteria:

- Comments can be liked, edited, deleted
- Spam or abuse detection on inputs
- Threads grouped by module/topic

5.9   Course Completion & Certification

Logic:

- All required content = marked done
- All required quizzes/assignments = passed
- Instructor review (if manual cert approval enabled)

Endpoint: GET /learner/courses/{courseId}/certificate

Acceptance Criteria:

- Certificate is branded with tenant logo and learner name
- Only downloadable if 100% course completion
- Unique certificate ID + QR code optional

5.10 Track Personal Progress

Endpoint: GET /learner/progress

Features:

- List of all enrolled courses

- Progress bar (%)

- Upcoming tasks/reminders

Acceptance Criteria:

- Clear visibility of completion status

- Reminders triggered via email/in-app if idle > 7 days

5.11   Account & Preferences

Endpoints:

- GET /learner/profile
- PUT /learner/profile/update

Features:

- Edit name, profile picture
- Update password
- Set notification preferences

Acceptance Criteria:

- Email cannot be changed (ID)
- All updates are tracked with audit log

Learner Certifications, Notifications & Analytics – Detailed Specification

These modules ensure learners are motivated, informed, and accountable, while giving admins/instructors visibility into engagement and performance.

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1. Certification System

1.1 Certification Generation

Trigger Conditions:

- All required modules marked as done

- All quizzes passed (min pass % set by instructor)

- Assignments graded (if any)

- Optional instructor review/approval (toggle)

Endpoint: GET /learner/courses/{courseId}/certificate

Certificate Fields:

- Learner full name

- Course title

- Completion date

- Instructor name (optional)

- Unique certificate ID

- QR Code (verifiable URL)

Acceptance Criteria:

- Certificate generated as PDF

- Stored securely, accessible anytime

- Regeneration not allowed (unless revoked by instructor)

1.2 Certificate Management

Learner View:

- GET /learner/certificates → List of all issued certificates

Admin/Instructor View:

- GET /tenant/certificates → Filter by course, learner

Acceptance Criteria:

- Admin/instructor can revoke certificate

- Revoked certs are no longer verifiable

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2. Notifications System

2.1 Notification Types

Type	Trigger Event
Enrollment Confirmation	Course enrollment
New Module Released	Drip content or manual publish
Quiz/Assignment Due	24h before deadline
Assignment Graded	Instructor submits grade

Certificate Available	Completion requirements met
Inactivity Reminder	No activity in 7 days
Announcement Posted	Course/instructor broadcast

2.2 Channels

- In-app bell icon

- Email

- Optional: push (if mobile app is added)

2.3 Preferences Management

Endpoint: PUT /learner/profile/notifications

Options:

- Enable/disable by type

- Choose channel (email/in-app)

Acceptance Criteria:

- Learner controls notification types

- All notifications stored in /learner/notifications

- Unread notification count shown in header

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3. Learner Analytics & Insights

3.1 Personal Progress

Endpoint: GET /learner/progress

Includes:

- Courses in progress vs completed

- Average quiz score

- Time spent per course/module

- Daily/weekly streak

Acceptance Criteria:

- Learners can view their trends visually (graphs)

- Progress updated in real-time

3.2 Instructor & Admin Views

Endpoints:

- GET /instructor/courses/{courseId}/analytics

- GET /tenant/learners/{learnerId}/performance

Includes:

- Individual learner heatmaps (time, quiz, completion)
- Drop-off points per course
- Engagement scores (based on activity frequency, depth)

Acceptance Criteria:

- Analytics scoped to instructor's own courses
- Admins see global or filtered stats

Instructor Analytics & Admin Reports

This outlines analytics and reporting features limited to MVP scope — prioritizing clarity, performance tracking, and actionable insights for both Instructors and Admins.

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1. Instructor Analytics

1.1 Course-Level Dashboard

Endpoint: GET /instructor/courses/{courseId}/analytics

Metrics Displayed:

Metric	Description
Enrolled Learners	Total learners enrolled
Completion Rate	% of learners who completed the course
Average Progress	Average module completion %
Quiz Performance	Avg score across all quizzes
Assignment Submission Rate	% of learners who submitted assignments
Drop-Off Point	Most common module where learners stop

UI Widgets:

- Progress ring

- Leaderboard (top-performing learners)

- Line graph: Daily active learners

- Bar chart: Quiz scores distribution

Acceptance Criteria:

- Instructor can only view their own courses

- Data auto-refreshes daily

- All metrics downloadable as CSV

1.2 Learner-Level Drill Down

Endpoint: GET /instructor/courses/{courseId}/learners/{learnerId}

Details:

- Progress % by module

- Quiz scores + timestamps

- Assignment status (Submitted / Graded)

- Last activity timestamp

- Certificate status

Acceptance Criteria:

- Drill-down is read-only

- Instructor can export single learner report

2. Admin Reports

2.1 Org-Wide Reporting Dashboard

Endpoint: GET /tenant/admin/reports/overview

Metrics:

Metric	Description
Total Active Learners	Across all courses
Total Instructors	With at least 1 published course
Course Count	Total published + draft courses
Revenue Summary	Monthly/Annual (if billing is integrated)
Top 5 Courses	Based on enrollments

Acceptance Criteria:

- Tenant Admin sees reports scoped to their organization

- All data exportable as Excel or CSV

2.2 Detailed Reports

Endpoints:

- GET /tenant/admin/reports/learners

- GET /tenant/admin/reports/courses

Features:

- Filters: date range, role, course status

- Bulk export

- Aggregated stats per instructor

Acceptance Criteria:

- Reports contain learner email, name, course titles, progress %

- Admin can search/filter by course or learner