

Requirement Analysis Phase

Solution Requirements (Functional & Non-functional)

Field	Details
Date	21 February 2026
Team ID	LTVIP2026TMIDS47806
Project Name	LearnHub: Your Center for Skill Enhancement
Individual Member	C. Karthik
Maximum Marks	4 Marks

Functional Requirements

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	User Registration & Login	Register via form (name, email, password, role); JWT-based login; bcrypt password hashing
FR-2	Role-based Access Control	Separate dashboards for Student, Teacher, and Admin based on user type field
FR-3	Course Management (Teacher)	Add courses (title, description, category, price, sections); delete course if no enrolled students; add sections to courses
FR-4	Course Discovery (Student)	Browse all available courses; search/filter by name, category; view course details with educator info and price
FR-5	Enrollment & Payment	Enroll in free courses directly; purchase paid courses; enroll in multiple courses
FR-6	Course Progress & Completion	Resume course from last stopped section; track completion; download certificate on course completion
FR-7	Admin Controls	View and manage all users (students and teachers); edit or delete any course; view enrollment records per course

Non-functional Requirements

NFR No.	Non-Functional Requirement	Description
NFR-1	Usability	Intuitive UI using React.js, Bootstrap, and Ant Design; responsive across desktop and mobile
NFR-2	Security	JWT token authentication, bcryptjs password hashing, role-based route protection via authMiddleware.js

NFR-3	Reliability	Stable MERN stack; MongoDB persistence ensures data is not lost between sessions
NFR-4	Performance	Vite-powered frontend for fast builds; optimized Express.js API responses under 300ms
NFR-5	Availability	Application runs locally at http://localhost:5172 ; deployable on cloud platforms for 24/7 access
NFR-6	Scalability	MongoDB's NoSQL architecture scales horizontally; modular Express routes support future feature additions