Online Tutoring Platform

THUtorium

Vision

1. Introduction

The Technische Hochschule Ulm is renowned for providing world-class education in the engineering sciences. Its highly effective teaching model, which combines lectures with tutorial sessions led by student tutors, has proven successful in deepening students' understanding and mastery of the subjects. However, certain highly technical topics that require a greater level of abstraction and comprehension would benefit from more intensive coaching and guidance to help students fully grasp the complex concepts. Additionally, staying up-to-date with the latest software tools and technologies is also essential, but incorporating these into the curriculum can be challenging due to various constraints. External resources, such as those found online, often are outdated and lack the quality and depth needed for effective learning. To address these challenges, we propose to develop an online tutoring platform - THUtorium - during this project, which will provide a dedicated space for students to engage with qualified tutors. THUtorium will offer personalised support, allowing the students to receive one-on-one attention and guidance in areas where they struggle. The platform will be available to the entire THU community, including students and faculty. Committed to delivering the most current, contextually relevant, and high-quality content, THUtorium will ensure a secure, personalised, and enriching learning experience for all students of the THU.

2. Positioning

2.1 Problem Statement

The problem of	Limited access to individual tutoring in complex and technical subjects
affects	THU students and their academic performance. Furthermore, restricted access to qualified professors, out-of-date resources, and scheduling issues affect students' success, harming their overall educational experience and professional preparation.
the impact of which is	A lack of understanding and mastery of fundamental concepts, which leads to lower grades and lowered self-confidence, students struggle to grasp abstract concepts.
a successful solution would be	an online tutoring platform that offers flexible access to competent tutors, deepens students’ comprehension, encourages collaboration and enhances academic performance within the university community.

2.2 Product Position Statement

For	Tutors, Professors, Students
Who	Need an effective way to connect, teach, and learn in an accessible, flexible environment that enhances academic performance and collaboration.

The (product name)	is a THUtorium
That	Enables flawless communication, personalized learning experience and live feedback on how to improve academic outcomes and efforts from any place. Moreover, professors will be able to choose from a variety of tutors to be assigned to their courses.
Unlike	Traditional on-campus tutoring sessions, which require fixed scheduling, physical presence, and often lack personalized feedback for every student,
Our product	It is a platform that offers the convenience of online learning combined with academic rigour. The platform provides real-time interaction, personalized tutoring, and customized resources that are tailored to specific subject.

3. Stakeholder Descriptions

3.1 Stakeholder Summary

Name	Description	Responsibilities
Student Learners	Students who want to improve their understanding of certain courses. They look for tutoring from peers who have already done well in the same subjects.	● Attend sessions and engage with the learning material ● Provide feedback on the tutoring sessions ● Select tutors based on qualifications and reviews
Student Tutors	Students who have excelled in specific courses and offer their knowledge to peers. They must meet the platform's qualifications requirements.	● Provide tutoring services in the courses they have excelled in ● Ensure that sessions are prepared and conducted professionally ● Report their availability and maintain a good track record of tutoring quality
Platform Administrators	The team is responsible for managing the platform's operations, making sure that both students and tutors are adhering to the platform's policies and that the platform remains functional.	● Oversee platform performance and user activities ● Approve or reject tutor applications based on academic qualifications ● Address user complaints and resolve technical issues

3.2 User Environment

THUtorium is designed to support both one-on-one and many-to-one tutoring sessions for students and tutors at Technische Hochschule Ulm, providing flexible access to academic support.
- Number of People Involved:
The platform facilitates individual or small group tutoring sessions, where students can connect with one or more tutors. Faculty involvement may occur for assigning tutors or monitoring progress, but the primary users will be students and tutors.
- Task Cycle:
Students will use the platform to search for tutors, book sessions, and participate in live classes or one-on-one video tutoring sessions. The booking process is intended to be quick, taking only a few minutes. Tutoring sessions will

vary, typically lasting between 30 minutes and two hours, based on the student's needs.
- Unique Environmental Constraints:
THUtorium requires a stable internet connection to support live video tutoring, real-time chat, and interactive sessions. It is intended for use in various environments, whether students are accessing the platform from campus, at home, or in other locations.
- System Platforms in Use Today:
THU students currently use Moodle for accessing course materials and SELMA for managing course and exam registrations. While these systems serve key functions, THUtorium is a separate platform, dedicated to tutoring and personalized academic assistance.
- Application Integration:
Although future integration with Moodle or SELMA could be explored, it is not a priority, as THUtorium's functionality focuses specifically on tutoring rather than course management, registration, material provision, or assignment uploading.

4. Product Overview

4.1 Needs and Features

Need	Priority	Features	Planned Release
Registration	High	Granting all users the ability to create their accounts securely	MVP
Verifying for eligibility of tutors	Medium	Teachers have the option to verify and confirm their grades	Post-MVP
Tutor Search	High	Allowing students to search for tutors based on the subject, expertise(grade), verification, and time slot.	MVP
Communication tools	High	Live chats, Video calls, and screen sharing using Jamboard for both parties to share their working environment in real time	MVP
Scheduling meetings	High	Students should be able to view and book the sessions	MVP

Feedback system	Medium	Students should be able to provide feedback and rate the tutoring sessions	MVP
Progress tracking	Low	Provides insights on student's progress based on completed sessions	Post-MVP
Notifications	Medium	To keep users updated about their upcoming session reminders, chats and feedback.	Post-MVP

5. Other Product Requirements

Requirement	Priority	Planned Release
The platform must support at least 50 simultaneous tutoring sessions with live video and chat without significant degradation in performance.	High	MVP
The platform must ensure secure user authentication (e.g., THU OAuth2) and data encryption (SSL/TLS) for all communications between students and tutors.	High	MVP
The platform must be scalable to handle up to 3500 registered users.	Medium	Post-MVP
The platform must be compatible with modern web browsers (Chrome, Firefox, Safari) and mobile devices (iOS and Android).	Medium	Post-MVP
The system should be designed to minimise downtime, ensuring 99% uptime. Additionally, if a tutoring session is interrupted, the platform should be able to recover the session within a minute.	High	MVP
The platform should include comprehensive user documentation, including a knowledge base, video tutorials for users (students and tutors), and online help systems.	Medium	Post-MVP
User session data, including chat history, video session metadata, and feedback reports, must be securely stored and daily backed up.	High	MVP
The platform must have an intuitive user interface (UI) that requires less than 5 minutes for new users (both students and tutors) to understand the basic functions (e.g., searching for a tutor, booking a session, starting a video call).	High	MVP
The platform must comply with the Web Content Accessibility Guidelines (WCAG) 2.1 Level AA to ensure accessibility to users with disabilities, including screen reader compatibility and keyboard navigation.	Low	Post-MVP
The platform must support multiple languages (e.g., English, German, Spanish) and enable content localization (e.g., currency, time zone) based on the user's location.	Medium	Post-MVP
The platform must comply with GDPR (General Data Protection Regulation) and other relevant data privacy regulations, ensuring that user data is handled transparently and securely.	High	MVP
The platform must include a built-in analytics dashboard for tracking key metrics like user engagement, session success rates, and booking trends, with downloadable reports for administrators.	Low	Post-MVP