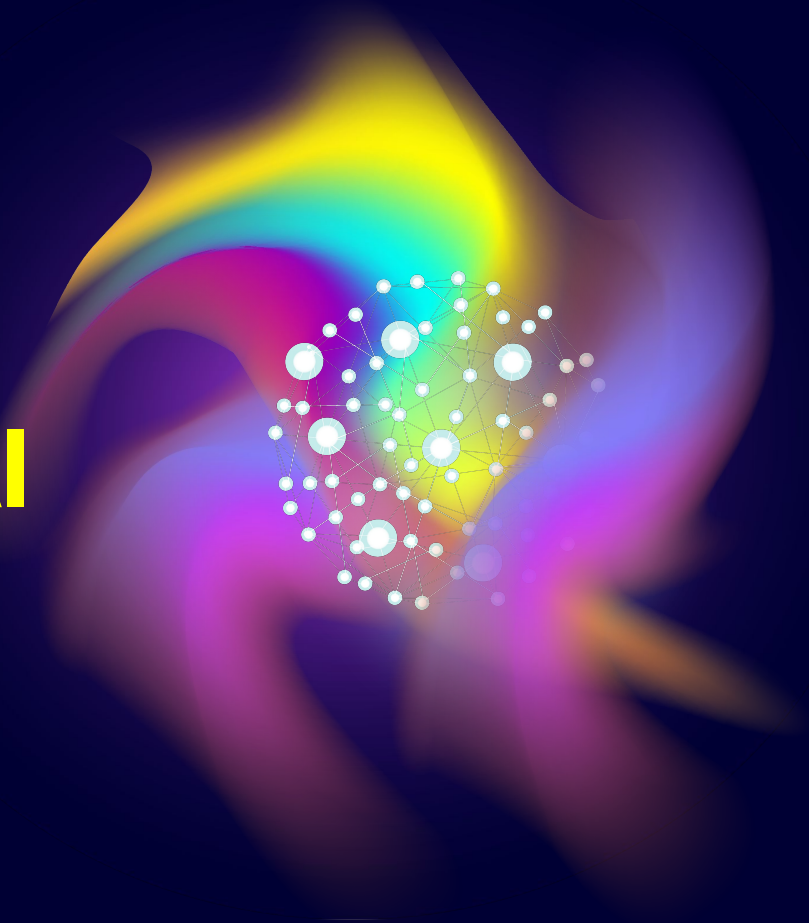
Generative AI
Project Proposal:
CourseConnect AI



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Our Team

Anudeep

Grace

Harsha

James

Piyali

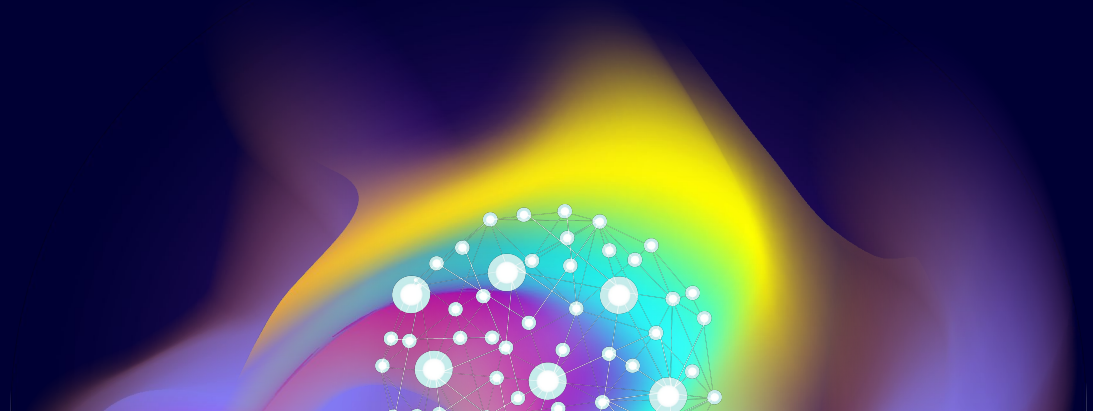
Shashank

Sumanth

Product

For this project, we have developed...

CourseConnect AI



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01. Business Sector Research

🎯 Target Sector

Education Technology (EdTech) – specifically focusing on AI-powered academic advising and course planning.

👥 Customer Base

UMD students, advisors, and admin staff

💡 Business Opportunity

A centralized, AI-powered academic planning tool can:

- Unify course data into one interactive interface.
- Help students make informed, career-aligned decisions.
- Reduce reliance on manual advising.
- Provide analytics on student trends and academic interests.

⚠️ Challenges Identified

- Course data is siloed across multiple systems with inconsistent formats.
- Students face difficulty finding the right courses aligned to career paths.
- Manual advising is time-consuming and resource-intensive.
- Scalability becomes a concern as data volume grows.

02. AI Transformation Analysis

Adoption & Impact Across Various Segments:

- Student Services
  High adoption level with the development of chatbots, which reduce wait times through 24/7 support, manage routine tasks, and assist with course registration.
- Academic Delivery
  High adoption level with
  personalized learning, quick feedback, and increasingly accessible material.
- Administrative Tasks
  High adoption level as AI
  streamlines grading, scheduling, and records management.
- Campus Navigation
  Low adoption level, providing CampusBuddy an opportunity to lead in this space.

02. AI Transformation Analysis Cont.

Successful Businesses

- ASU launched a new collaboration with OpenAi to leverage ChatGPT Enterprise, illustrating the role of generative AI in higher education.
- Georgia State University created a classroom chatbot, “Pounce”, which has improved performance. Coursera developed the Generative AI Academy to offer tailored content.

Unsuccessful Businesses

- Particularly at public and small universities, AI adoption is relatively slow due to financial constraints and policy gaps.
- Additionally, small to mid-sized liberal arts universities, face challenges due to resource constraints, cultural resistance, limited tech experience, and ethical concerns.

02. AI Transformation Analysis Cont.

Adoption & Transformation Challenges:

- Data Privacy
  Privacy and security regulations regarding student data limit how AI may be leverage in academic institutions. New privacy attacks on LLMs, such as “jailbreaking”, have lead to data leaks.

- Faculty Resistance
  Fears regarding violations of academic integrity and reductions of critical thinking decelerate AI adoption.

- Inconsistent Data
  Siloed systems and unstructured files increase implementation and integration costs.

- ROI Concerns
  Some universities fail to justify the high initial costs of AI due to unclear knowledge of ROIs.

03. Analytical Framework: Who?

Beneficiaries

- Students: Easier course discovery, career-aligned planning
- Advisors/Admins: Reduced workload through automation
- Universities: Improved engagement & retention

Victims

- Manual advising roles may be reduced, risking job displacement.
- Faculty resistant to AI-based changes may face adaptation challenges.
- Non-tech-savvy students may feel overwhelmed, straining IT support

Leaders

- ASU partnered with OpenAI for ChatGPT integration.
- Georgia State developed student success chatbots.
- Ellucian & Salesforce offer AI tools for academic systems (SIS).

04. Analytical Framework: Why?

Success VS Fail

- ASU, Georgia State University, and Coursera experienced success with AI adoption due to targeting clear use cases, strong leadership, and responsible training.
- AltSchool and smaller colleges (e.g., Clabright) have failed due to limited resources and unrealistic expectations.

Resistance

- Administrative staff and faculty members resist AI transformation due to concerns regarding academic integrity, job displacement, and student privacy concerns.
- Budget constraints and complex legacy systems also create resistance among IT specialists.

Now VS Later

- Companies should invest is AI capabilities now versus later to gain a competitive advantage as technological industry is rapidly advancing.
- AI is also expected to yield cost savings for businesses, allowing them to meet changing consumer preferences.

05. Analytical Framework: How?

Data Collection:
Gather information from sources (e.g., syllabi and course catalogs).

Extract Text:
Pull the raw text from websites using tools, such as BeautifulSoup.

Entity Extraction:
Utilize AI tools to find key information, (e.g., course and professor names).

Relationship Mapping:
Map connections, such as professors to the courses that they teach.

Knowledge Graph:
Input and organize data into a graph database (e.g., Neo4j).

Search Interface:
Allow users to pose questions to translate into graph searches.

Visual Interface:
Build a dashboard with Streamlit for users to explore information.

Test & Improve:
Conduct pilot tests to collect and implement feedback.

05. Analytical Framework: How? Cont.

Redefining Business Procceses & Roles:

- Academic Advising
  Academic advising transitions from manual searches to personalized recommendations created by AI.

- Professors & Courses
  Professor profiles and courses become increasingly discoverable and connected due to leveraging AI-generated data.

- IT Departments
  IT specialists engage with AI and knowledge graphs more frequently to manage CourseConnect, along with traditional university systems.

- Administrative Tasks
  Basic administrative tasks (e.g., managing academic records and policies) become automated, allowing administrative staff to focus on other responsibilities.

05. Analytical Framework: How? Cont.

Data Inconsistency
Use normalization and data cleaning to handle legacy systems and ensure quality.

Privacy Concerns
Align with FERPA, use access controls, and collect only minimal required data.

Scalability
Start with one department (e.g., Business School), expand based on success.

Model Errors
Apply diverse datasets, monitor continuously, and involve users to reduce bias.

Stakeholders
Engage faculty, staff, and students via pilots and feedback loops.

Financial Limits
Use free tools like Streamlit and partner with student interns or research groups.

06. Developed Software Overview

Let’s now walk through our proposed
CourseConnect AI system!

Thanks!

Do you have any questions?