Workshop 1

Software Engineering Seminar

Universidad Distrital Francisco José de Caldas

Systems Engineering Program

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Key Partners

The application's main strategic partners are technology providers and academic collaborators.

The former guarantee the availability, security, and scalability of the system through hosting services, databases, and development tools.

The latter, such as educational institutions or associate professors, provide reliable and up-to-date information on courses and programs.

These partnerships allow the core team to focus on the development and continuous improvement of the product.

Key Activities

The application's key activities focus on design,developing and maintaining the web system, ensuring its proper functioning and an efficient user experience.

These include managing teacher/course data and optimizing the search engine to improve the accuracy of results.

Key Resources

The key resources for the application are technological and human. Reliable infrastructure, secure databases, and web development tools are required to implement the main functions. In addition, the project depends on developers and academic collaborators who ensure that the information provided is up to date and reliable.

Value Propositions

The main value proposition of the application is to facilitate access to reliable and organized academic information about teachers and courses, allowing users to quickly find the options that best suit their interests or learning needs.

The project seeks to address the lack of centralization and updating of educational information by offering a simple tool that optimizes the search and comparison of courses and teachers. In this way, it meets users' need for a clear, accessible, and up-to-date platform.

Unlike other systems, the application stands out for its simplicity of use and its open structure, which does not require authentication to consult information, making it practical and accessible to any interested user.

Customer Relationships

The relationship with users is based on accessibility and self-service, offering a simple and straightforward experience without the need for authentication. Users can freely browse courses and professors, accessing reliable and up-to-date information. Support focuses on maintaining system availability and data accuracy, strengthening trust in the platform.

Channels

The application offers its value proposition through a digital channel, a website accessible from any device, which allows users to browse courses and teachers without registering.

Promotion is carried out through social media and partnerships with educational institutions, achieving efficient and low-cost outreach.

Customer Segments

The application is primarily aimed at students and individuals interested in academic training who are seeking reliable and up-to-date information on courses and teachers. This group values ease of access, data organization, and the ability to quickly find educational options that suit their interests.

Complementarily, the platform also generates value for educational institutions and teachers, who can benefit from greater visibility for their programs and skills.

The target market is broad, focused on users in the academic environment, but with a design that allows it to be easily adapted to different educational levels or training contexts.

Cost Structure

The cost structure of the application focuses mainly on the technological and human resources required for its development and maintenance. Fixed costs include web hosting, database services, development tools, and server maintenance, which guarantee the availability and security of the system.

Variable costs are associated with the development team's working time, academic content updates, and possible functional improvements based on user needs or system growth.

The model focuses on cost optimization, prioritizing the use of efficient and scalable resources, such as cloud services and open-source tools. In this way, it seeks to maintain a balanced relationship between quality, performance, and operational sustainability.

Revenue Streams

The app's revenue model is primarily based on complementary services and academic visibility options. Although basic access to the search engine is free, revenue streams such as educational advertising, institutional subscriptions, or premium plans could be implemented to allow teachers or institutions to highlight their courses.

In the long term, revenue could also be generated through collaboration with universities or academies, which would pay to integrate their educational offerings into the platform.

The pricing strategy would be flexible and accessible, with the aim of maintaining a balance between economic sustainability and ease of access for users. Payments would be made digitally, prioritizing simplicity and transparency in each transaction.

Request/Activity ID		**Prepared by**	Carlos Pescador	**Date**	2025-02-10
Version	01				

CARD

Story ID*	US_CourseFinder_01
Story Name*	Registration of new teachers
Project	Web application for managing and searching for courses and teachers
User Role*	System administrator

I want to* (The need)

To register new teachers on the platform by entering their personal and academic details.

So that* (The justification)

To keep the teacher database up to date and ensure that users have complete and up-to-date information when consulting the system.

Creation Date 2025-02-10

CONVERSATION

PROCESS DETAILS OR DISCUSSION*

During the analysis, it was identified that the administrator needs a form that allows them to enter each teacher's data, including basic information (name, ID, email, specialty, among others).

The system must validate the required fields before saving the data in the database. Once the teacher is registered, a confirmation message should be displayed and the general list of teachers should be updated.

REFERENCES & OBSERVATIONS

References:

Observations:

It must be ensured that the data entered is valid and not duplicated.

The form design must be responsive and accessible.

INVEST - KEY CHARACTERISTICS

Independent or Depends on: This story does not depend on another HDU for its development.

Negotiable: The basis on which the entire technological solution is built; fields and validations can be adjusted according to academic requirements.

Valuable: Increases the quality and reliability of the information in the database.

Estimable: It is possible to estimate the development time based on the complexity of the form and the validations.

Small (sprint): It can be developed in a single sprint, as it involves a single CRUD (Create) functionality.

Testable: It can be verified through field validation tests, correct storage in the database, and visual confirmation messages.

ACCEPTANCE CRITERIA

Acceptance Criteria:

1. The administrator can access the registration form from the main panel.
2. All required fields must be validated before saving the data.
3. The system must display a confirmation message when a teacher is successfully registered.
4. The new teacher's data must appear in the general list of teachers without having to reload the page.
5. Duplicate registrations (e.g., same email or ID number) should not be allowed.

Request/Activity ID		**Prepared by**	Carlos Pescador	**Date**	2025-02-10
Version		01			

CARD

Story ID*	US_CourseFinder_02
Story Name*	Registration of new subjects
Project	Web application for managing and searching for courses and teachers
User Role*	System administrator

I want to* (The need)

To add new subjects to the system, including their name, description, and other relevant information.

So that* (The justification)

To expand and keep up to date the academic offerings available to users who consult courses in the application.

Creation Date 2025-02-10

CONVERSATION

PROCESS DETAILS OR DISCUSSION*

During the analysis, it was determined that the administrator will be able to create new subjects using a form that includes fields such as subject name, description, area or category, and assigned teacher (optional).

The system must validate that there are no duplicate subjects and ensure the correct link between course and teacher. Once the subject has been registered, the system must display a success notification and reflect the new course in the general list.

REFERENCES & OBSERVATIONS

References:

Observations:

Courses should be able to be registered with or without an assigned instructor.

INVEST - KEY CHARACTERISTICS

Independent or Depends on: This story does not depend on another HDU for its development.

Negotiable: Fields and relationships with teachers can be adjusted according to the needs of the academic system.

Valuable: Expands the academic information base, increasing the usefulness of the platform for end users.

Estimable: The effort can be estimated by considering the implementation of the form, validations, and data insertion into the database.

Small (sprint): It can be developed in a single sprint, as it involves a single CRUD (Create) functionality.

Testable: It can be verified through field validation tests, correct storage in the database, and visual confirmation messages.

ACCEPTANCE CRITERIA

Acceptance Criteria:

1. The administrator can access the registration form from the main panel.
2. All required fields must be validated before saving the data.
3. The system must display a confirmation message when a subject is successfully registered.
4. The new subject's data must appear in the general list of teachers without having to reload the page.
5. The system must prevent the creation of duplicate subjects.
6. If a teacher is assigned, the relationship must be correctly recorded in the database.

Request/Activity ID	**Prepared by**	Alejandro Riveros	**Date**	2025-02-10
Version	01			

CARD

Story ID*	US_CourseFinder_003
Story Name*	Link Professor to One or Multiple Courses
Project	Web Application for Managing and Searching Courses and Teachers
User Role*	System Administrator

I want to* (The need):

I want to be able to link an existing professor to one or more existing courses in the system.

So that* (The justification):

So that professors can be correctly associated with the courses they teach, enabling users to view accurate relationships between courses and instructors when searching.

Creation Date 2025-02-10

CONVERSATION

PROCESS DETAILS OR DISCUSSION*

The administrator accesses the “Professor–Course Linking” section from the admin dashboard.

- The admin selects a professor from the list of registered professors.
- The system displays available courses not yet linked to that professor.
- The admin selects one or several courses to assign.
- Once confirmed, the system saves the relationships and displays a confirmation message.
- The list of linked courses is updated in the professor’s profile and can be edited or removed later.

Additional notes:

- If a course is already assigned to another professor, the system should indicate this.
- The interface should support multiple selections.
- Validation: both entities must exist before linking.

REFERENCES & OBSERVATIONS

References:

Observations:
This story depends on the prior creation of professors and courses. It is part of the core administrative functionality for the Course Finder platform and should support bulk linking operations.

The linking interface must validate data integrity and display proper feedback messages to the administrator.

INVEST - KEY CHARACTERISTICS

Independent or Depends on:	Depends on Story 001 (Create Professor) and Story 002 (Create Course).
Negotiable:	The user interface and linking workflow can be refined based on feedback from administrators.
Valuable:	Enables core administrative control over professor–course relationships, ensuring accurate and consistent data.
Estimable:	The development time can be estimated based on the complexity of the form, relationship linkage, and validations.
Small (sprint):	Fits within a single sprint for a small development team.
Testable:	Testable through UI and backend validation, ensuring that a professor can be successfully linked to one or multiple courses.

ACCEPTANCE CRITERIA

Acceptance Criteria:

1. The administrator can access a dedicated interface for linking professors to courses.
2. The system displays only existing professors and existing courses.
3. The administrator can select one professor and one or multiple courses to link.
4. Upon confirmation, the links are stored and visible in both entities' profiles.
5. If the admin tries to link a professor or course that does not exist, an error message is displayed.
6. If a course is already linked to another professor, the system prevents duplication or warns the admin.
7. The system allows unlinking or modifying existing links.
8. A confirmation message appears after successful linking.

Reference Documents

Appendix

Request/Activity ID	**Prepared by**	Alejandro Riveros	**Date**	2025-02-10
Version	01			

CARD

Story ID*	US_CourseFinder_004
Story Name*	Search Courses by Professor and Professors by Course
Project	Web Application for Managing and Searching Courses and Teachers
User Role*	System User

I want to* (The need):

I want to be able to search for the courses taught by a specific professor and also search for one or several courses to see their assigned professors.

So that* (The justification):

So that I can easily access accurate information about professors, the subjects they teach, and the professors assigned to each course, improving navigation and discovery in the platform.

Creation Date 2025-02-10

CONVERSATION

PROCESS DETAILS OR DISCUSSION*

The user accesses the “Search” section from the main platform interface.

- The user can search by entering a professor’s name to view the list of courses they teach.
- Alternatively, the user can search by entering one or more course names to view the professors assigned to them.
- The system displays search results in a clear and organized layout, showing course titles, professor names, and related metadata.
- Filters may be available to refine search results.
- Search results update dynamically as the user types (optional enhancement).

Additional notes:

- The search must handle partial matches and ignore case sensitivity.
- Data integrity relies on accurate course–professor associations from the admin module.
- The interface should be responsive and accessible from mobile and desktop.

REFERENCES & OBSERVATIONS

References:

Observations:

This story integrates both perspectives of the search module — by professor and by course. It depends on existing course–professor relationships and focuses on data retrieval and visualization.

The UI must support flexible search filters, result pagination, and display relevant course or professor details in an intuitive manner.

INVEST - KEY CHARACTERISTICS

Independent or Depends on:	Depends on Story 003 (Link Professor to Courses).
Negotiable:	Search filters, display format, and pagination can be adjusted based on usability feedback.
Valuable:	Provides core functionality for users to navigate and discover course–professor relationships, improving the platform's user experience.
Estimable:	The effort can be estimated based on the number of filters, database queries, and frontend integration needed.
Small (sprint):	Can be completed within a single sprint by a small development team.
Testable:	Testable through search cases validating that results are accurate and match linked data between professors and courses.

ACCEPTANCE CRITERIA

Acceptance Criteria:

1. The user can search by professor and view all their associated courses.
2. The user can search by course and view all assigned professors.
3. The system displays clear, accurate, and complete results for each query.
4. The search supports partial text matches and is not case-sensitive.
5. If no results are found, the system displays a friendly message.
6. The search performance remains under 2 seconds for average query loads.
7. The interface is responsive and adapts to desktop and mobile devices.

Reference Documents

Appendix

Request/Activity ID	**Prepared by**	Alejandro Riveros	**Date**	2025-02-10
Version	01			

CARD

Story ID*	US_CourseFinder_005
Story Name*	Home Page and Access Flow for Administrator and User
Project	Web Application for Managing and Searching Courses and Teachers
User Role*	Administrator / General User

I want to* (The need):

As an administrator, I want to access a home dashboard that summarizes key system metrics and provides shortcuts to management actions. As a general user, I want to access the homepage and be directed immediately to the course and professor search feature.

So that* (The justification):

So that both user types can efficiently access the system according to their role — the administrator can manage data quickly, and the user can immediately start searching without unnecessary navigation.

Creation Date 2025-02-10

CONVERSATION

PROCESS DETAILS OR DISCUSSION*

When accessing the platform:

- The system identifies the user's role after login.
- If the user is an administrator, the homepage displays a dashboard with key statistics (number of courses, professors, and last updates).
- If the user is a general user, the homepage automatically redirects to the main course–professor search module.
- The layout is minimalist, emphasizing quick access and search performance.

Additional notes:

- The page should have responsive design and load within 2 seconds.
- The administrator dashboard must provide direct links to course and professor management pages.
- The general user view hides all administrative elements.

REFERENCES & OBSERVATIONS

References:

Observations:

This story defines the main entry point of the system for both administrators and general users. It integrates routing logic and UI design to distinguish between roles at login.

For administrators, the homepage displays metrics such as total professors, total courses, and recent updates.

For users, the homepage leads directly to the search component without additional navigation steps.

INVEST - KEY CHARACTERISTICS

Independent or Depends on:	Depends on Story 004 (Search Courses by Professor and Professors by Course) and authentication module.
Negotiable:	The homepage layout, design elements, and dashboard widgets can be adjusted based on feedback and usability tests.
Valuable:	Provides a personalized entry point for both users and administrators, ensuring efficient access and navigation.
Estimable:	The scope is measurable by estimating the layout design, routing logic, and conditional rendering by user role.
Small (sprint):	Can be implemented within a single sprint.
Testable:	Testable by verifying redirection, role-based rendering, and proper access to corresponding sections.

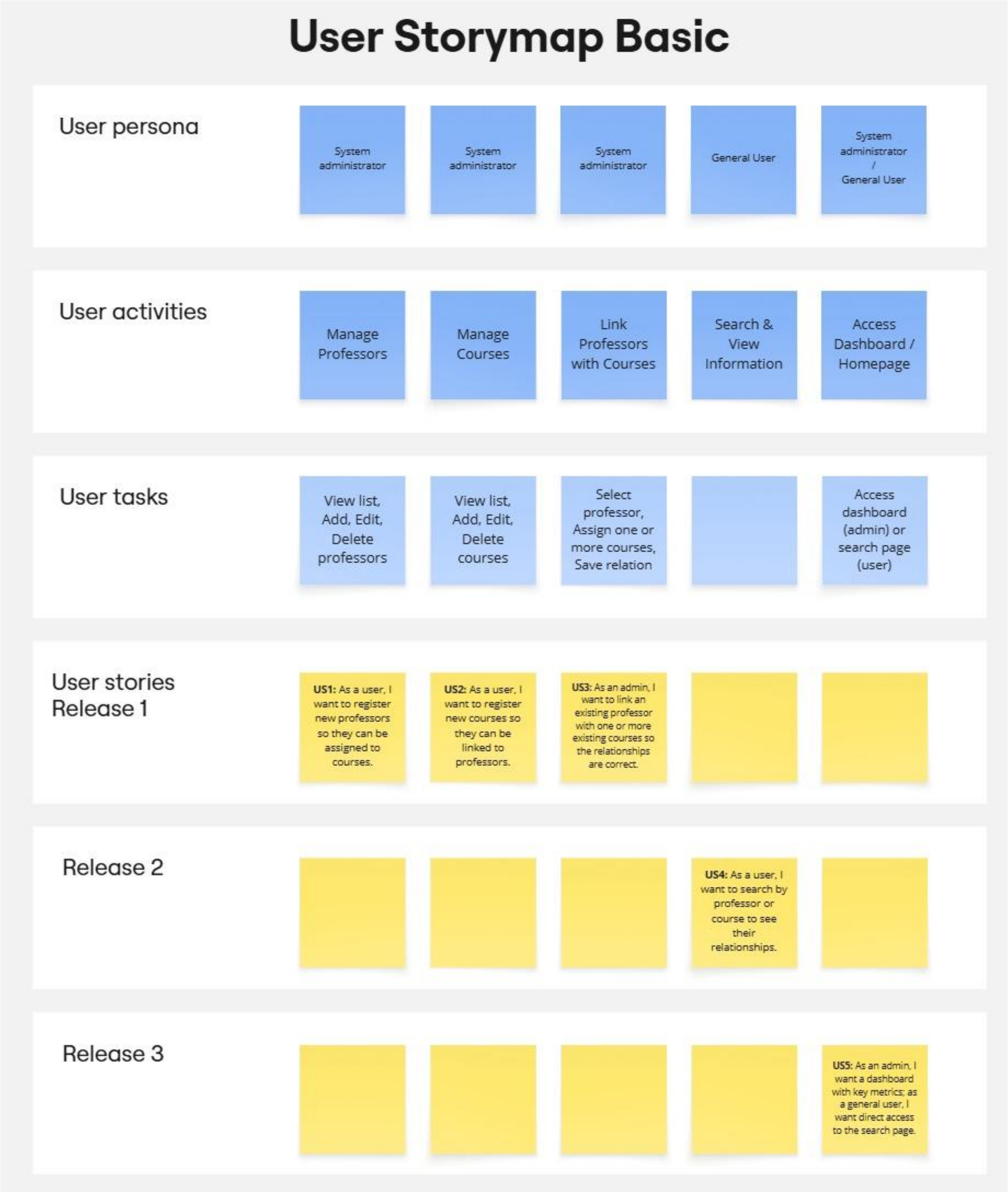
ACCEPTANCE CRITERIA

Acceptance Criteria:

1. The system redirects users based on their role: admin → dashboard, user → search page.
2. The homepage loads correctly and displays personalized content.
3. The admin dashboard shows relevant metrics and quick management options.
4. The general user view focuses exclusively on the search functionality.
5. The interface is responsive and loads within acceptable performance thresholds.
6. Navigation between homepage and other sections works without errors.

Reference Documents

Appendix



User Storymap Basic

User persona	System administrator	System administrator	System administrator	General User	System administrator / General User
User activities	Manage Professors	Manage Courses	Link Professors with Courses	Search & View Information	Access Dashboard / Homepage
User tasks	View list, Add, Edit, Delete professors	View list, Add, Edit, Delete courses	Select professor, Assign one or more courses, Save relation		Access dashboard (admin) or search page (user)
User stories Release 1	**US1:** As a user, I want to register new professors so they can be assigned to courses.	**US2:** As a user, I want to register new courses so they can be linked to professors.	**US3:** As an admin, I want to link an existing professor with one or more existing courses so the relationships are correct.		
Release 2				**US4:** As a user, I want to search by professor or course to see their relationships.	
Release 3					**US5:** As an admin, I want a dashboard with key metrics; as a general user, I want direct access to the search page.

CRC Cards – Professors & Courses System

Class–Responsibilities–Collaborators

Class: Professor

Responsibilities

- Store professor information (name, ID, contact).
- Manage CRUD operations (create, read, update, delete).
- Retrieve all courses assigned to the professor.

Collaborators

- Course
- ProfessorCourseManager

Class: Course

Responsibilities

- Store course information (name, code, description).
- Manage CRUD operations.
- Retrieve all professors assigned to the course.

Collaborators

- Professor
- ProfessorCourseManager

Class: ProfessorCourseManager

Responsibilities

- Handle associations between professors and courses.
- Validate that both professor and course exist before linking.
- Provide queries to get professors by course or courses by professor.

Collaborators

- Professor
- Course
- Database (Repository Layer)

Class: SearchService

Responsibilities

- Handle search requests by professor name or course name.
- Fetch and format relationship data for display.
- Interface with the data manager to retrieve results efficiently.

Collaborators

- ProfessorCourseManager
- Professor
- Course

Class: Dashboard

Responsibilities

- Provide summarized system information (counts of professors, courses, and links).
- Offer quick navigation shortcuts (e.g., add new course/professor, view all).
- Display different layouts depending on user role (Admin vs General User).

Collaborators

- ProfessorCourseManager
- Professor
- Course