

Degree Companion: Web-Based Degree Progress Manager

Project Presentation

**Information Architecture and Web Usability
Winter Term 2025/26**

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27 Jan 2026

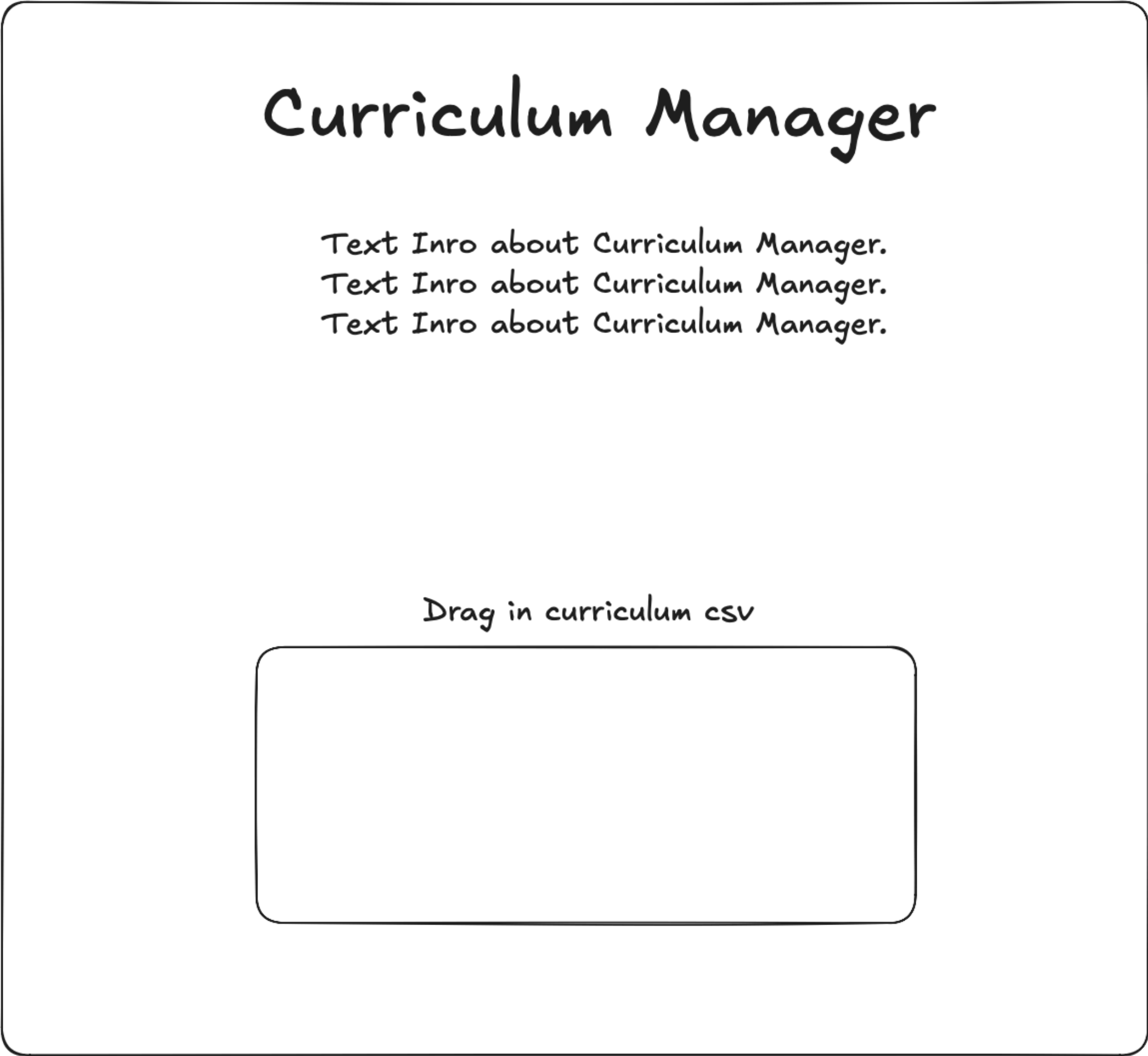
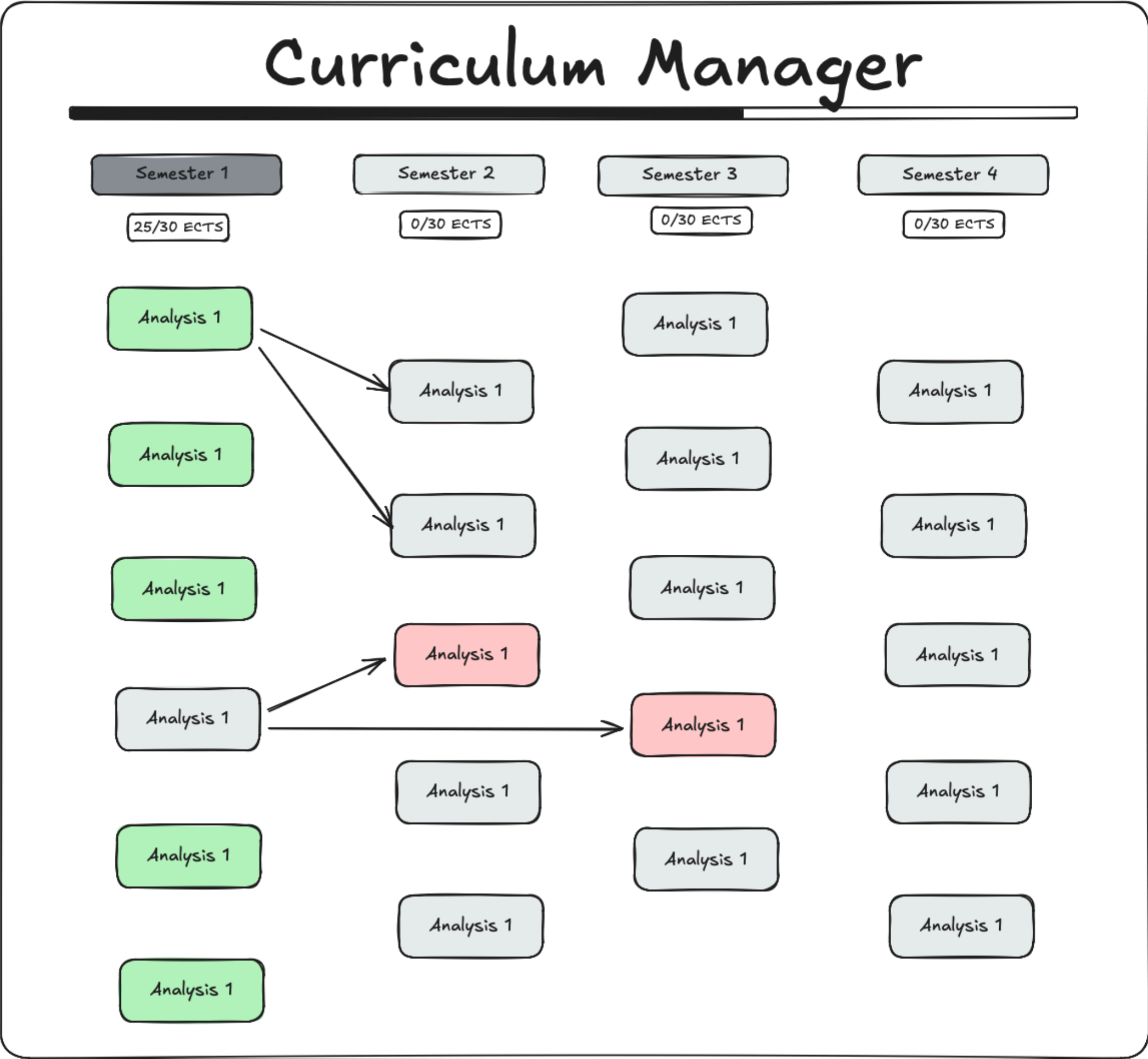
Outline

- Motivation
- Design Sketch
- Current State
- Data Format
- Steps Through The UI
- Demo
- Future Work
- Conclusion

Motivation

- Hard to plan academic journey.
- Extensive freedom to choose modules and courses.
- Very many courses, with interconnected dependencies.
- Goal:
 - Increase student motivation and engagement.
 - Ensure structured and coherent learning path.
 - Reduce pitfalls and stressful times.

Design Sketch



Current State

- Mapped two study programs of Graz University of Technology:
 - Bachelor's Software Engineering and Management. ¹
 - Master's Computer Science. ²
- Load & Parse CSV dropped into application.
- Preview curriculum as raw table.
- Fill out onboarding form to provide additional information.
- Show initial course graph in recommended semesters with dependencies.
- Ability to add, remove and re-order courses.

¹ <https://github.com/gugacs/degree-companion/blob/develop/data/curricula/tug-bsc-sem.csv>

² <https://github.com/gugacs/degree-companion/blob/develop/data/curricula/tug-msc-cs.csv>

Data Format

- course_id: string | string[]
- course_name: string | string[]
- module_code: string | string[]
- module_name: string | string[]
- course_subcategory: string | string[]
- course_type: string | string[]
- credits: integer | integer[]
- required: integer | integer[]
- availability: string | string[]
- recommended_semester: integer | integer[]
- prerequisites: string | string[]
- frequency: string | string[]
- language: string | string[]
- description: string | string[]
- url: string | string[]

Example: IAWEB

- course_id: 706.041
- course_name: Information Architecture and Web Usability
- module_code: IVIS
- module_name: Interactive Visual and Information Systems
- course_subcategory: Mobile and Web Applications
- course_type: VU
- credits: 5
- required: 0
- availability: S
- recommended_semester: 0
- prerequisites: INH.02021UF
- frequency: yearly
- language: EN
- description: ...
- url: <https://online.tugraz.at/iaweb>

Example: HCI

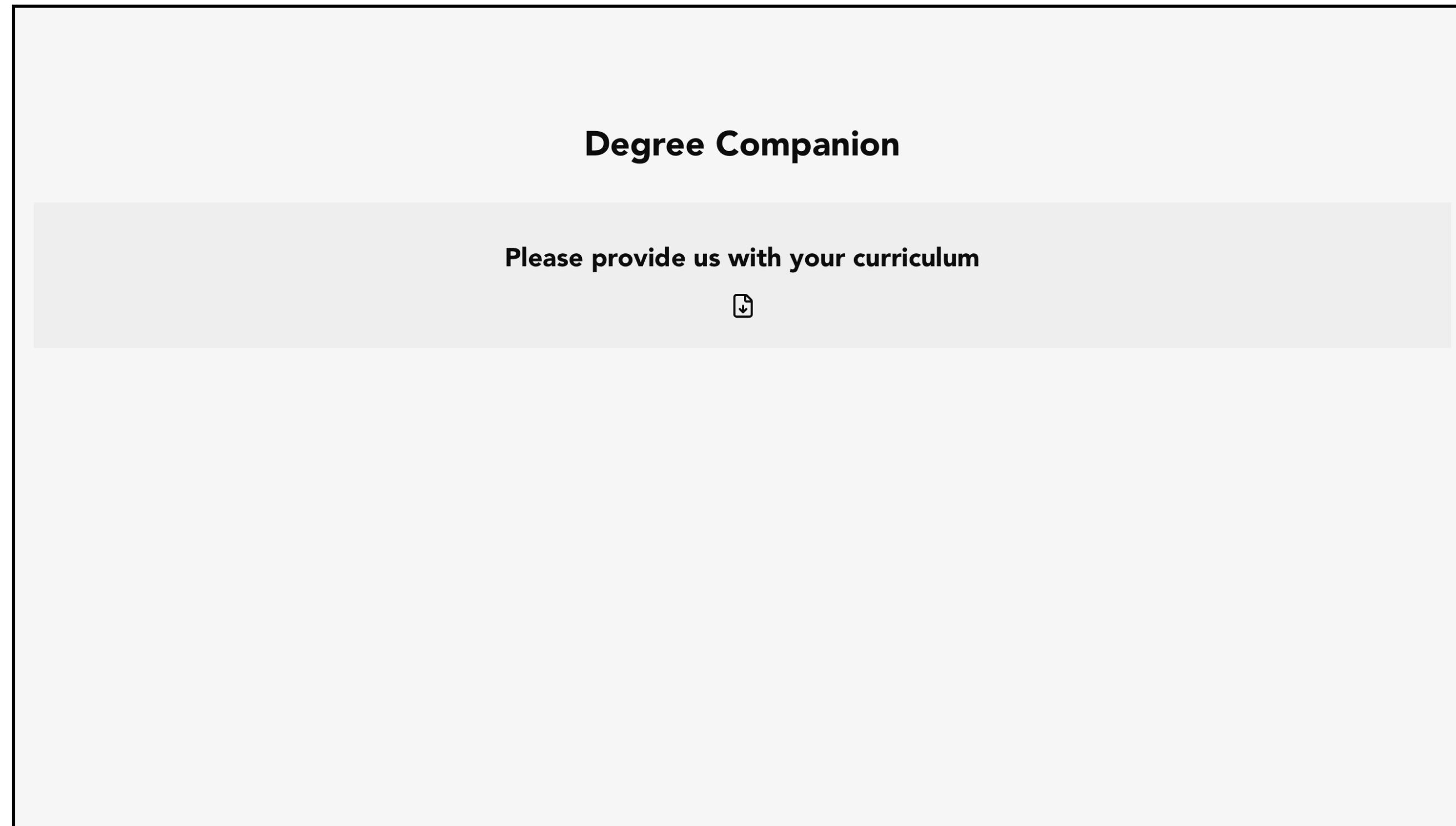
- course_id: INH.02021UF
- course_name: Human-Computer Interaction
- module_code: H
- module_name: Information Processing 2
- course_subcategory: None
- course_type: VU
- credits: 4.5
- required: 3
- availability: S
- recommended_semester: 4
- prerequisites: None
- frequency: yearly
- language: EN
- description: ...
- url: <https://online.tugraz.at/hci>

Steps Through The UI

- Step 1 - Upload Curriculum CSV
- Step 2 - Preview Curriculum Format
- Step 3 - Enter Additional Details
- Step 4 - Explore Curriculum Graph
- Step 5 - Update Degree Progression

Step 1- Upload Curriculum CSV

- Drag and drop CSV into rectangular area.
- Automatically load and parse structure in the background.



Step 2 - Preview Curriculum Format

- Show user preview of the loaded curriculum to catch parsing mistakes.
- Re-upload updated file or continue.

Overview of your file

course_id	course_name	module_code	module_name	course_subcategory	course_type	credits	re
DAT.B43UF	Machine Learning 2	ATCS;DS;ML;VC	Algorithms and Theoretical Computer Science;Data Science;Machine Learning;Visual Computing	Applications;Machine Learning;Fundamentals 1;Foundations of Visual Computing	VO	3;3;3;3	
DAT.B44UF	Machine Learning 2	ATCS;DS;ML;VC	Algorithms and Theoretical Computer Science;Data Science;Machine Learning;Visual Computing	Applications;Machine Learning;Fundamentals 1;Foundations of Visual Computing	KU	2;2;2;2	
DAT.C103UF	Topological Data Analysis	ATCS;DS	Algorithms and Theoretical Computer Science;Data Science	Applications;Statistics	VU	5;5	
DAT.C504UF	Network Science	ATCS;DS;ML	Algorithms and Theoretical Computer Science;Data Science;Machine Learning	Applications;Web Science;Data Mining	VU	5;5;5	
721.020	Algorithms and Games	ATCS;GE	Algorithms and Theoretical Computer Science;Games	Algorithms;Game Design	VU	4;4	

Continue to Onboarding →

Step 3 - Enter Additional Details

- Enter complementary information needed for better planning.
- Available options automatically filled in from loaded curriculum.

Degree Type

What type of degree is this curriculum for?

Bachelor
Undergraduate degree

Master
Graduate degree

Starting Semester

When do you begin your studies?

Winter Semester
Start in fall/autumn

Summer Semester
Start in spring

Total ECTS Credits

How many ECTS credits are required for the entire curriculum?

120

 ECTS

Major and Minor Modules

Select which module is your Major and which is your Minor

Major Module
Interactive Visual and Information Systems (IVIS)

Minor Module
Information Security (ISEC)

ECTS for Major and Minor

Specify the ECTS credits for your Major and Minor modules

Interactive Visual and Inform...
IVIS

60

 ECTS

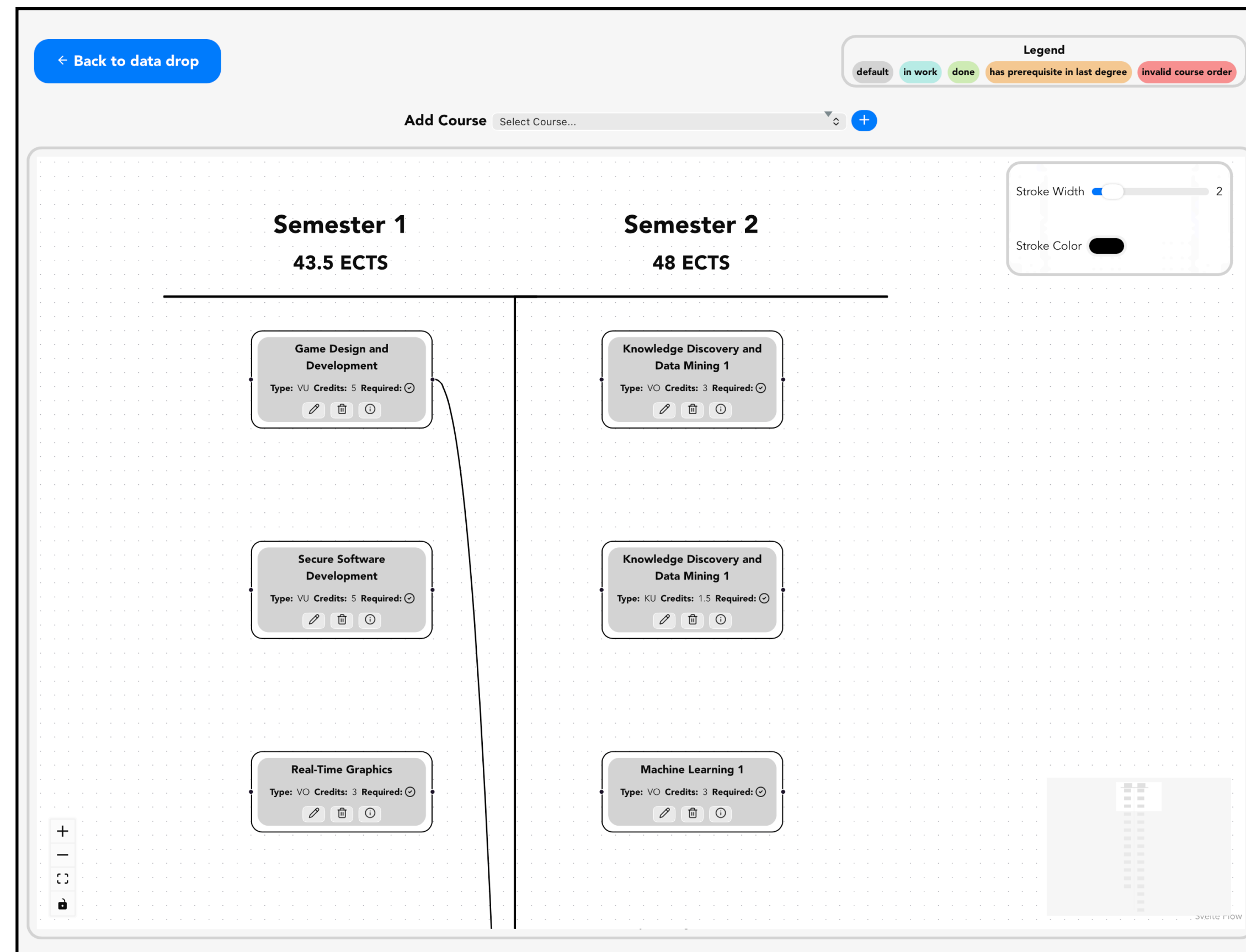
Information Security
ISEC

24

 ECTS

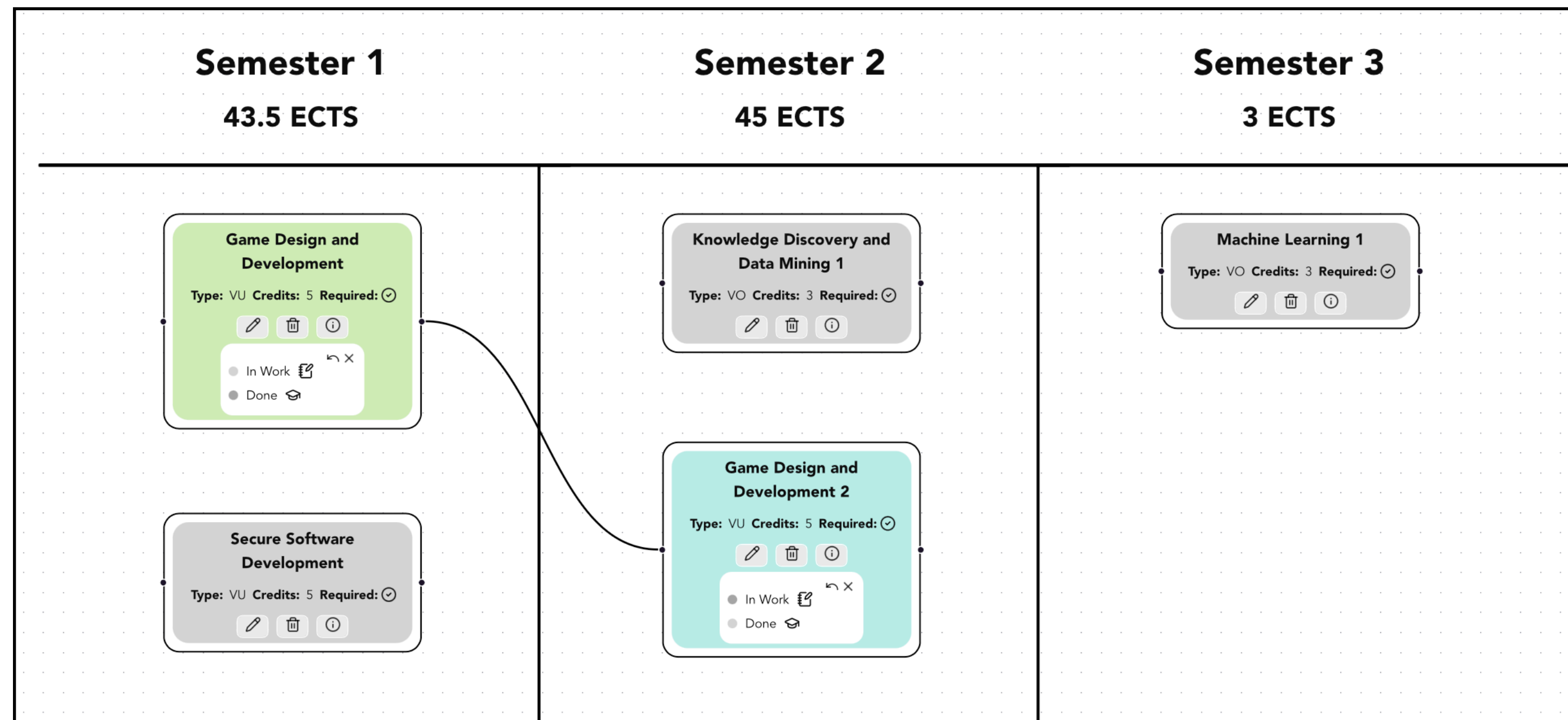
Step 4 - Explore Curriculum Graph

- Show overview of the curriculum (e.g., recommended courses).
- Explore available course options.



Step 5 - Update Degree Progression

- Modify progression state of individual courses.
- Move courses between semesters and create new ones.



Live Demo

Demo of Degree Companion

Showcase Video

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24.01.2026

Information Architecture and Web Usability WS 2025/2026

Group 1

Using Tauri 2.0 on MacOS Tahoe 26.2

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Youtube: https://youtu.be/VCo_RC9fokQ

Github: <https://github.com/gugacs/degree-companion>

Live Preview: <https://github.com/gugacs/degree-companion/releases>

Future Work

- Extend onboarding to get supplementary information from user.
- Finish filtering and adjustments to graph based on onboarding.
- Improve workflow while organizing courses across semesters.
- Improve user guidance throughout the application.
- Test application on other curricula from other universities.
- Evaluate, gather and implement feedback from other students.

Conclusion

- Much work and brainpower went into planning.
- Hard to develop universal curriculum format.
- Complex application aiming to simplify planning problem.
- Hard to integrate vast feature set into usable application.
- Created comprehensive prototype with foundational functionality.
- Application can be downloaded and extended upon.¹

¹ <https://github.com/gugacs/degree-companion/>

Questions?