



UNIVERSIDAD NACIONAL AUTÓNOMA DE MÉXICO
FACULTY OF ENGINEERING

FINAL PROJECT THREE-DIMENSIONAL RECONSTRUCTION

PROJECT LOGBOOK

COMPUTER GRAPHICS AND HUMAN-COMPUTER INTERACTION
SEMESTER: 2025-02



PREPARED BY

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INSTRUCTOR:

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LAB GROUP: 10
THEORY GROUP: 03

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DATE	CREATED BY	TASK	TIME (HRS)	COMMENTS
April 5-25	Adolfo	Front Building Structure	5	Initiated the 3D modeling of the main building's front using cube primitives. Measured and constructed the outer frame using manual transformations in OpenGL. Applied vector translation and scaling matrices to position cubes correctly. Ensured that similar proportions matched those from reference images taken of the Q building of the engineering faculty annex. No texture mapping was applied at this stage.
April 6-25	Alicia	Campus Photo Collection	8	Conducted an on-site photographic session at the university to collect real references of the building, surrounding environment, and textures. Photos were used to guide architectural modeling and texture generation. Images were sorted and categorized for easy reference by other team members.
April 8-25	Ileana	Right Building Base	5	Started building the south section of the right-side structure. Constructed vertical supports and floors using OpenGL cube arrays. Analyzed symmetry and proportions between the left and right wings to ensure visual balance. Used color coding to identify untextured and test segments.
April 8-25	Adolfo	Project Logbook Setup	1	Created a collaborative project logbook in English to track all individual contributions. Established a structure to record date, contributor, task, hours, and detailed comments. Clarified expectations for English documentation as required by the instructor.

April 9-25	Adolfo	GitHub Learning	3	Studied Git version control, created a repository for the team, and committed the first version of the code. Tested Git features like branch creation, commits, and conflict resolution to ensure a stable collaborative workflow. Shared credentials and instructions with the team.
April 9-25	Adolfo	Right Building Expansion	5	Extended the previously created structure by adding corridor cubes and multiple levels. Calculated Z-offsets manually to ensure all elements aligned spatially. Implemented transformations using GLM's matrix functions. Logged positions and sizes to maintain replicability and consistency in future modeling.
April 17-25	Ileana	Right Building Completion	6	Completed the structure by finalizing side walls and roof segments. Adjusted cube scaling factors for each column, and aligned all vertices precisely to avoid gaps in the mesh. Prepared structure for texturing by cleaning misaligned geometry. Verified measurements using previous photo references.
April 17-25	Adolf	Left Building Construction	6	Modeled the entire left wing of the building, including inner partitions and a simple roof system. Focused on depth and volume, using layered cubes to give the appearance of floors. Introduced spacing logic to simulate hallways and accessible interiors.
April 18-25	Adolf	Front Building Finishing	5	Finished façade detailing, such as entrance columns and decorative lines. Experimented with lighting intensity to test shadow projection on frontal geometry. Verified coordinates using an imaginary grid system, ensuring seamless transitions with adjacent components.
April 18-25	Ileana	Geometry Corrections	4	Reviewed the entire structure and corrected spatial and scaling inconsistencies across all sections. Resolved overlapping cubes, adjusted model heights, and re-aligned corner joints. Implemented a checklist to verify dimension uniformity in both side wings.

April 18-25	Alice	irrKlang Audio Integration	5	Integrated the irrKlang library to include ambient sound in the scene. Set up the sound engine and tested audio playback, including looped tracks. Verified the effect of background music on performance and ensured that OpenGL rendering remained stable during audio processing. Added code for conditional playback.
May 1-25	Adolf	Texture Mapping Setup	15	Loaded multiple textures using stb_image, including concrete, grass, and white base. Applied them to the model using UV mapping and tested wrapping parameters. Debugged issues related to flipped textures and resolved Y-axis inversion. Incorporated glTexParameter for filtering quality and consistent appearance.
May 1-25	Alicia	3d animated models and installation of the camera point view	14	Searched for 3d models that were easy to import in parts and investigated different animation methods such as animation with mathematical functions and with presaved keyframes. Investigation of how to set up a camera in OpenGL and the direction where it points.
May 1-25	Ileana	3D Model Importing	14	Imported external 3D models (e.g., benches, chairs) into the OpenGL scene using Assimp. Verified scaling and rotation to match scene metrics. Integrated them into the static rendering pipeline and tested model loading performance. Prepared shaders to handle lighting on non-cube geometry.
May 6-25	Adolf	Texture Finalization	15	Refined all texture coordinates and confirmed the correct mapping on all building faces. Used a grayscale preview mode to test lighting and shading behavior. Unified visual aesthetics by tuning color tones and improving material shininess through uniform specular values in shaders.

May 6-25	Alicia	Final display of the animated models and additional keys for the camera	10	<p>Added functions for the camera positions and their assignment to certain keys.</p> <p>Configured the keys to control some of the animations, basic transformations were used, also added two different points of view in order to see directly the animations and uploaded the changes in the github repository.</p>
May 6-25	Ileana	3D Models Final Setup	14	Completed placement and alignment of all external models. Grouped models logically for better rendering performance. Resolved clipping issues with floors and added collision-free spacing between scene objects. Confirmed static lighting worked as expected on imported assets.
May 6-25	Adolf & Ileana	Full Scene Testing	3	Conducted final testing as a team. Verified camera movement, transitions between preset views, correct model rendering, sound playback, lighting, and texture stability. Recorded issues and applied quick fixes. Ensured scenes performed smoothly at 60 FPS across multiple devices.
May 6-25	Ileana	User Manual Drafting	4	Composed the main content of the user manual in English, including an overview of the software, installation steps, camera usage, and purpose of each model. Ensured clarity for users unfamiliar with OpenGL environments.
May 6-25	Adolf	User Manual Navigation	4	Authored the section on camera controls and navigation in English. Described implementation of synthetic camera, first-person movement, isometric view, and shortcut keys. Structured text with professional formatting, and ensured grammar and terminology were appropriate for technical documentation.