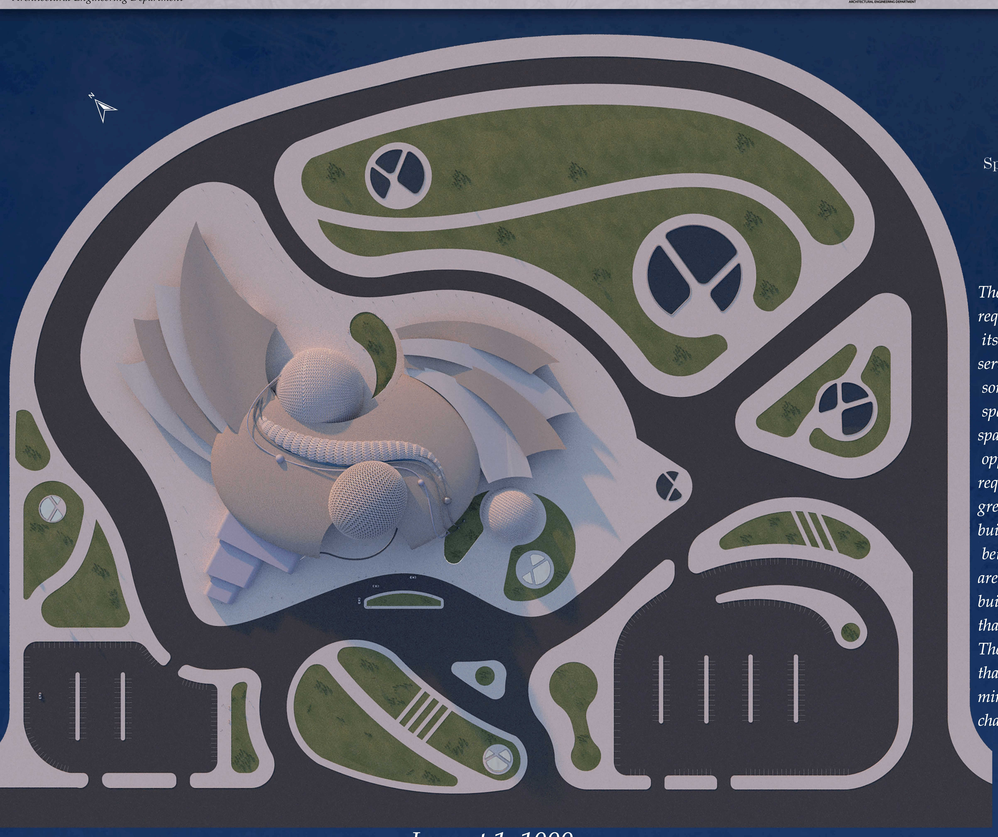
Jazan University
College of Engineering
Architectural Engineering Department

Senior Design Project

Space Science and Technology Center

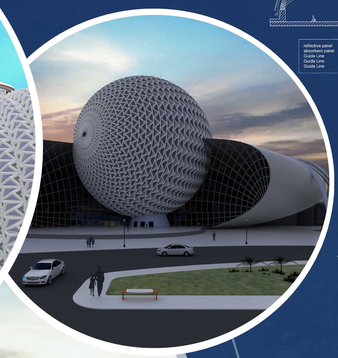
2021-2022
Student Name: Ali Dafer ALshehri
ID:201603982
Supervisor :Prof. Ramadan Mohamed Shoukry

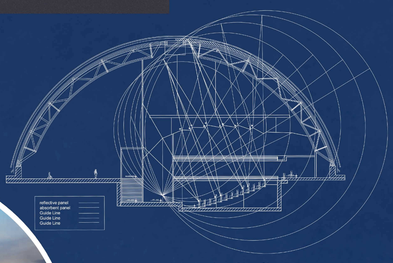


Space Science and Technology
EXCITING SPACE

The size of the large building requires external spaces suitable for its size, as well as some basic services such as parking lots and some green spaces, where the presence of green spaces is not limited only to the opposite side of the building, but requires the presence of green spaces at the back of the building to create a wet barrier between the building and the area The desert is behind the building, from which winds blow that may be laden with dust.
The car park can accommodate more than 1,600 cars, and it also contains mini stations for charging electric cars.

Layout 1: 1000

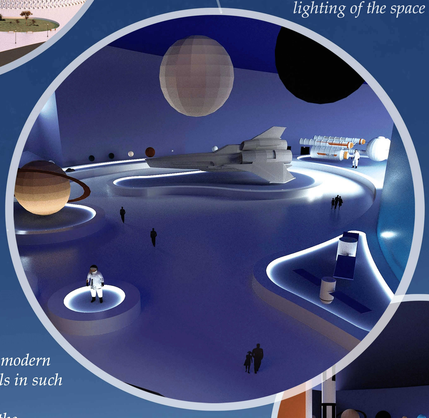




Acoustics Studies
The importance of studying acoustics in this project is concentrated in the cinema halls, as it requires design solutions, especially with the presence of circular ceilings for the mass.
As is clear in the plan, the two halls together have a circular shape, and there is an operating room at the bottom of the hall.

Lighting Studies
The lighting in this project was studied in the main part, which is the museum, as the lighting has an important role in this part of the building, because the main role that the lighting plays in this part is to show the display elements in a realistic way that simulates the lighting of the space to some extent.

The building block is characterized by a unique shape that does not resemble any of the realistic models of this type of projects, as the combination of design concepts and the use of design proportions to form the sizes of the blocks and their relationships made the building block appear expressive in some way.15



The mass's appear with modern exterior finishing materials in such a way that the viewer senses the building as the body of a spacecraft or the like.

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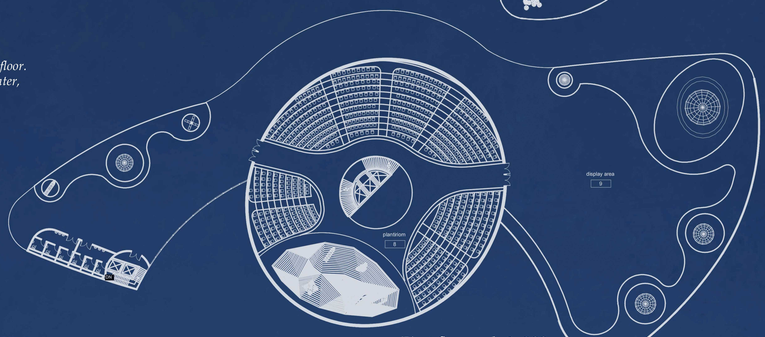
An entertaining scientific complex that contains astronomical observatories, a planetarium, a museum specializing in astronomy, an institute and a specialized research center, and a set of various tourism and educational services, The goal of such projects is to develop the field of space, as this type of project attracts a group of researchers and experts in this field, and also spreads awareness and knowledge in the community, where it is an arena for all who are passionate about this field of all ages, as it contains a number of entertainment factors And educational and video presentation halls , As for the buildings that contain this field, they must be of a degree of symbolism and quality, as they will be among the few buildings in the world that contain this activity, and the different activities in the building require great proficiency with regard to the study of functional relationships and their application, and the study of Movement in the building must be accurate and effective

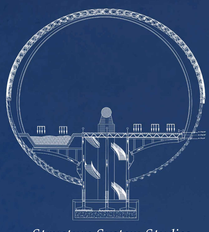
the movement of museum visitors is the most important, as the visitor to the exhibition travels an estimated distance of 300 to 450 meters in movement for all the contents of the exhibition, and the exhibition can accommodate approximately 400 visitors at one time without any problems, as the smallest distance of passage is 7.5m at the beginning of the path visitors.

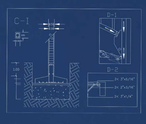
Ground floor scale 1: 400

The ground floor of the building contains most of the elements of the project, and its area is more than five times the area of the first floor. And the other is separatefor the staff and visitors of the research center, and the entertainment part also has a special entrance that enters directly into a large distributor that leads at the end to the cinema.



First floor scale 1: 200

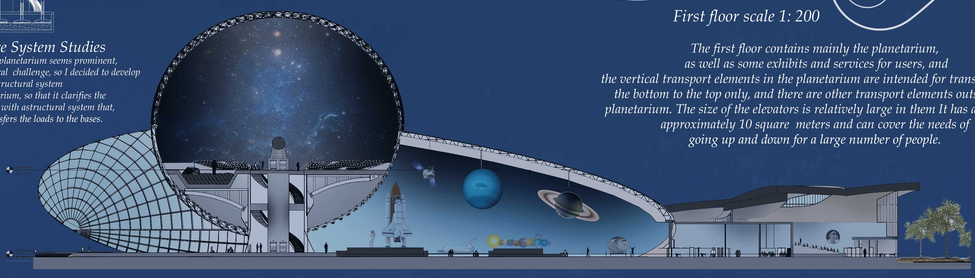




Structure System Studies

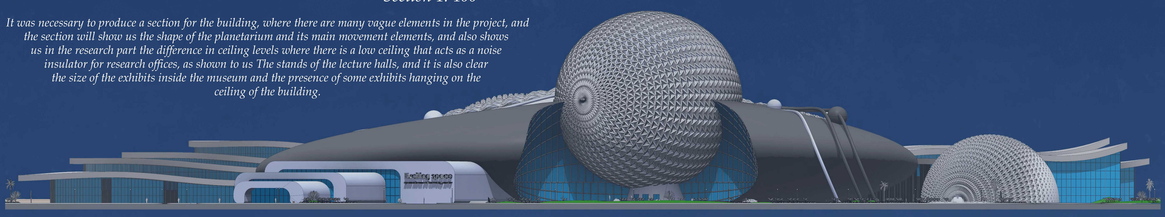
The shape of the planetarium seems prominent, it must pose a structural challenge, so I decided to develop a structural system for the planetarium, so that it clarifies the details of its link with astructural system that, in turn, transfers the loads to the bases.

The first floor contains mainly the planetarium, as well as some exhibits and services for users, and the vertical transport elements in the planetarium are intended for transport from the bottom to the top only, and there are other transport elements outside the planetarium. The size of the elevators is relatively large in them It has an area of approximately 10 square meters and can cover the needs of going up and down for a large number of people.



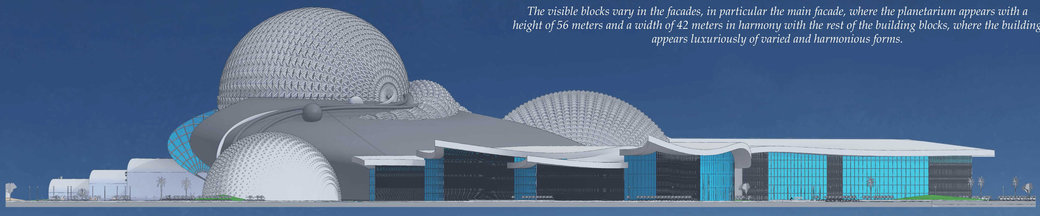
Section 1: 400

It was necessary to produce a section for the building, where there are many vague elements in the project, and the section will show us the shape of the planetarium and its main movement elements, and also shows us in the research part the difference in ceiling levels where there is a low ceiling that acts as a noise insulator for research offices, as shown to us The stands of the lecture halls, and it is also clear the size of the exhibits inside the museum and the presence of some exhibits hanging on the ceiling of the building.



Main elevation 1: 400

The visible blocks vary in the facades, in particular the main facade, where the planetarium appears with a height of 56 meters and a width of 42 meters in harmony with the rest of the building blocks, where the building appears luxuriously of varied and harmonious forms.



Side elevation 1: 400

The blocks located on the top of the roof of the building add a form of splendor to the minaret, where the linear blocks start from the ground climbing up to the building and rotating around it.