

**University of Creative Technology,  
Shenabaho, Gazipur**

**By**

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## **Declaration**

The work provided in this dissertation, unless otherwise referenced, is the Designer's own work, and has been submitted elsewhere for any other degree or qualification.

## **Abstract**

Every person has his/her own creativity that needs practice to be flourished. It needs a media which can help him/her to develop the power of his/her creativity. Now a days, people are also becoming interested in the designing media. But in our country, there are few institutions with limited facilities for this purpose. Therefore, an institution with the necessary facilities can help one to explore and develop his or her creativity through proper guidance. However, the aim of this project is to build a university which would provide all the facilities required for the students interested in the field of Design and Art. The proposed University of Creative Technology is going to be constructed 40 kilometers away from Dhaka city on 15 acres of land which is located at the bank of the extension of Turag River at Gazipur. There are ample opportunities in terms of creating spaces and relating interior spaces with the exterior through satisfying the requirements of this project. The project will provide all the facilities required by the institution to meet the necessities of the students which would also serve as a greater aspect in the field of creativity and cultural activities.

## **Acknowledgement**

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## **Chapter 1: Background of the project**

### **1.1 : Introduction**

The Shanto-Mariam Foundation was formed by Md. Imamul Kabir Shanto, an eminent and educationally minded businessman, and his equally enthusiastic wife, Tahmina Chowdhury Kabir (Mariam), with the object of promoting techno-based and cultural education to the general public, at realistic prices.

In the first phase of development, the Shanto-Mariam Academy of Creative Technology was created to provide short courses for both children and adults through the Palin School of Arts and Design, Singapore. The Bangladesh institute of Art, Design and Technology offers full time technical, vocational and cultural courses, mainly through Edexcel International, UK at National and Higher National Diploma level.

It was realized very quickly that there was a need in Bangladesh for such techno-based education at higher levels, particularly in the field of design, product development and culture, together with the more traditional subjects of Business Administration and Computer Science. An expert international team was put together and a project encompassing these was written and submitted.

The project received Government approval to offer four year Honors' degrees and post graduate degrees in what is now the first Design oriented Private University in the region the University of Creative Technology.

### **1.2: Specifications**

**1.2.1: Project title:** University of creative technology is the name of the project.

**1.2.2: Client:** Shanto-Mariam Foundation is the client of the project.

**1.2.3: Site:** The site is situated a bit far from Dhaka City. It is a land of 17.6 acre and surrounded by low agricultural lands which remain submersed during the rainy season. The address and location map of the site are given in the following page.

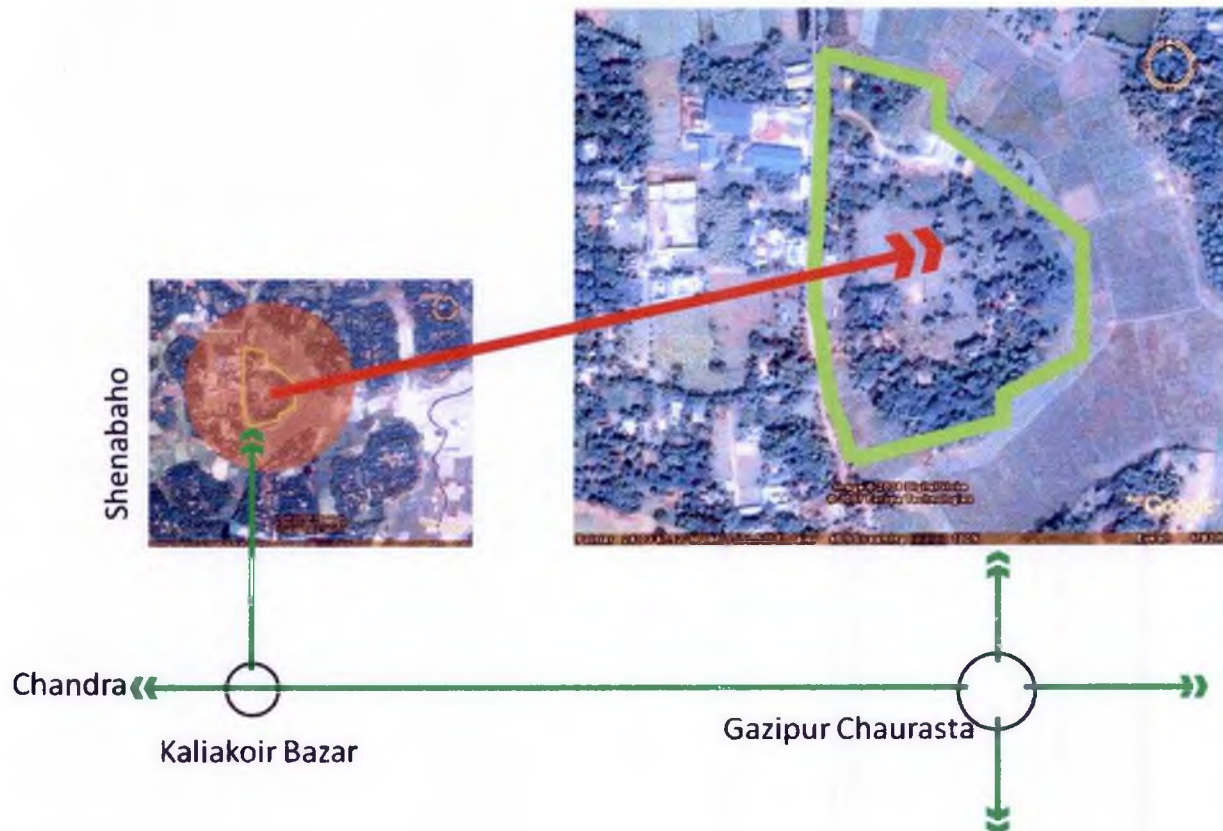


Figure1: Site Map

### Shenabaho, Gazipur

Total Site Area: 770554.5752 sft. (17.69 Acre)

### 1.3: Reason for choosing the project

The meaning of Architecture is to me is designing spaces. Here saying space I mean solid-void relationship, color, texture, material everything related with space. Spaces have different purposes, meanings and characteristics. Spaces have keen relationship with human, culture and society. Throughout the five years, the consciousness about designing spaces has taught us about a lot of things, has given us the ability to perceive spaces from different point of views. Coming to the end of such an important phase, the beginning of learning about space design, we are now at the point when we are preparing ourselves to enter the broader portion of the learning process, the practical world. At this point we have to show our interests, abilities, skills and understanding about architecture with a real project.

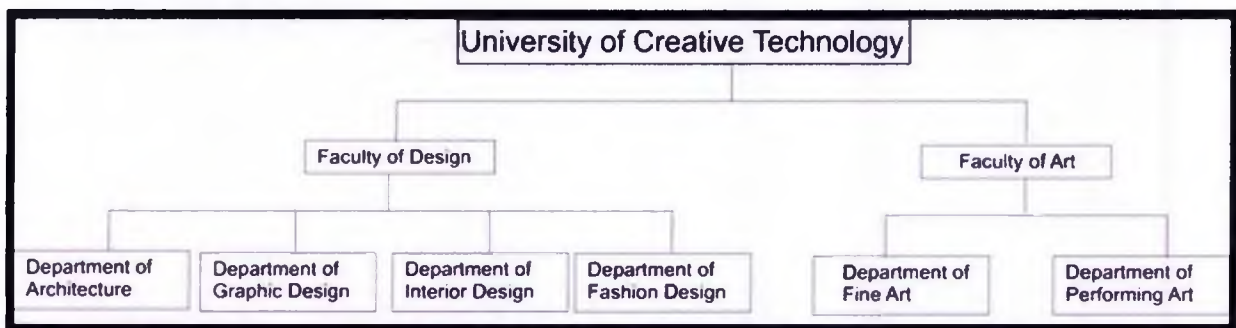


The selection of the project is very important in a sense that the project must have the scope of reflecting previous five years of learning. On a situation like this I am determined to design a university. Now the question may come that why I choose to design a university? According to my personal interest I always wanted to design a public space where people will gather with joy, lots of activity and vibrancy. University is a platform which has the potential to make people come closer with positive motives and activities. Besides, architecture does not mean only building design. The word Architecture has much more deeper explanation combining indoor and outdoor spaces. Indoor-outdoor relationship, understanding of proportion and scale, sensitivity to nature and anthropology everything is equally important in the field of architecture. From my point of view university design has an awesome challenge to deal with all these matters under a specific program. Therefore, I have chosen the design project named **University of Creative Technology** at Gazipur.

#### 1.4: Objectives of the project

As a University of Creative Technology the design project has the challenge to create a unique platform where exercise of science, creativity and culture would harmonize through the architecture. So the main objective of the project is to design a campus with the environment of education, performance and exhibition respecting the nature as there are a lot of plants in the site as well as the site is located in a rural settlement.

#### 1.5: Given Program



## Chapter 2: Site appraisal

### 2.1: Site and surroundings

**2.1.1: Environment:** The site is located in a rural settlement where north, east and south sides are mainly surrounded by low lands which are mainly used as agricultural purpose but during the rainy season they remain under flood water. A 20 feet wide road goes along the west edge of the site. There is an industrial development is happening all around the locality and a textile industry is situated just opposite side of the road.

### 2.1.2: Plans and images of the site:

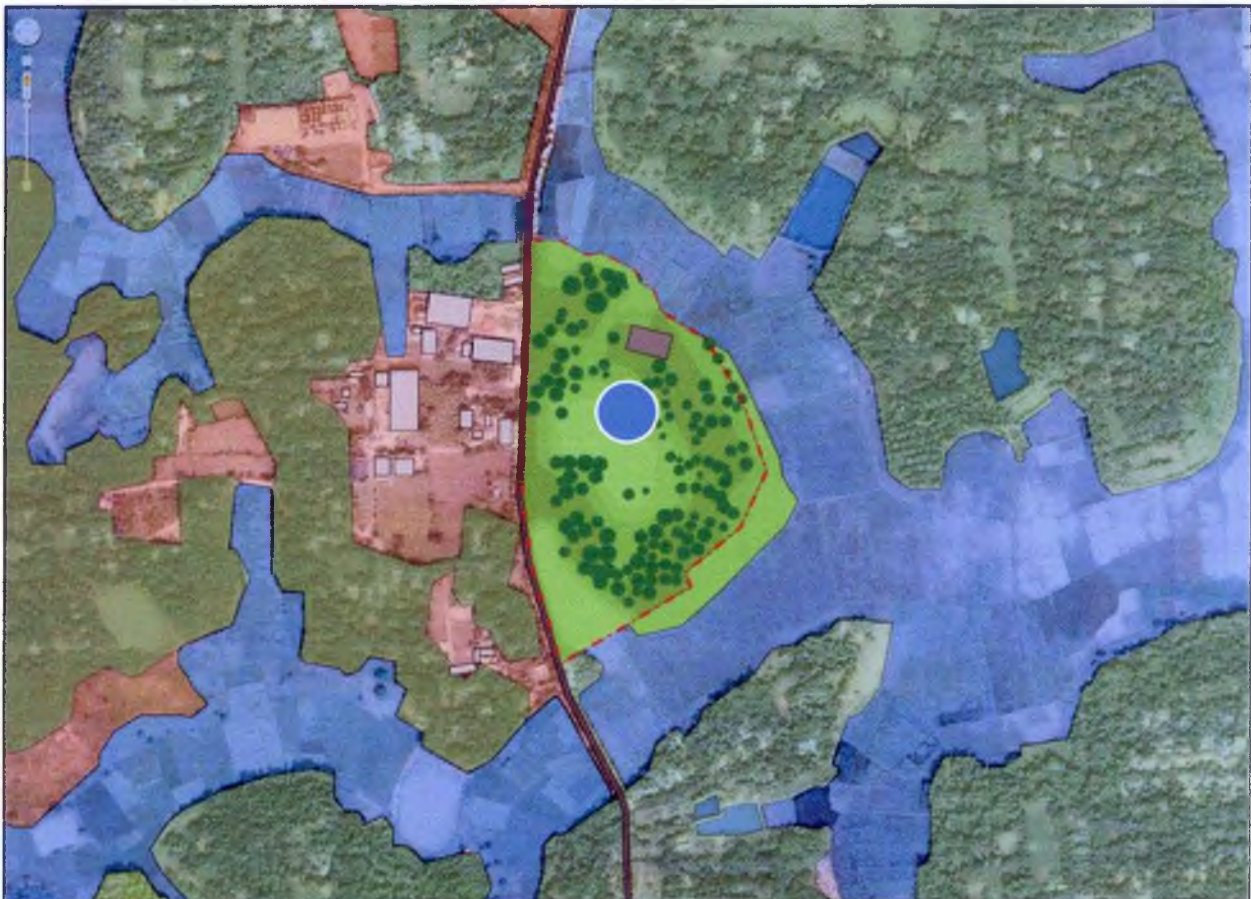


Figure 2: Plan of the site and Surroundings  
Source: Satellite image from google earth



Figure3: 360° Panoramic view of the site from center



Figure 4: Panoramic view towards North-East



Figure 5: Panoramic view towards East



Figure 6: Panoramic view towards South-East



Figure 7: Panoramic view of the Eastern edge of the site from outside



Figure 8: Panoramic view of the road adjacent to the West edge of the site  
Photography: by the author

**2.1.3: Climate:** As the site is located in the monsoon climatic region there is a lot of rain fall during rainy season and the sun remains almost perpendicular during summer and it gets some tilt to the south during winter. Beside these climatic factors there are some macro climatic effects because of the proximity to the river and the vast open land on the eastern sides of the site.

**2.1.4: Topography:** The topography of the site has got some variations. As it is shown in the figure, the site has some depressed region. Mostly the depressions are gradual downwards slopes and lowest portions are 7-8 feet down from the ground level.

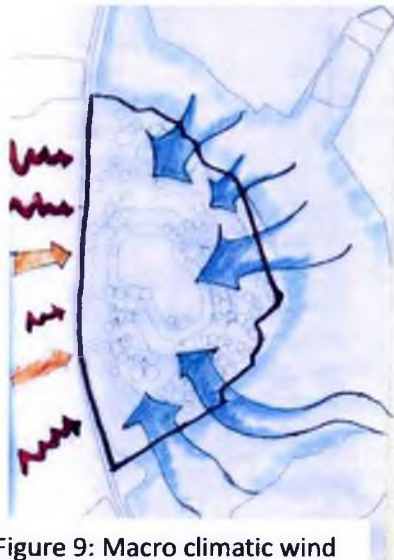


Figure 9: Macro climatic wind flow diagram

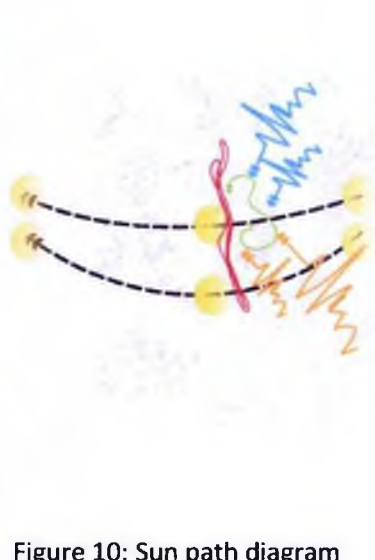


Figure 10: Sun path diagram



Figure 11: Topographic plan

## 2.2: SWOT analysis

**2.2.1: Strength:** The main strength of the site is its location and its elements around the site. The river being on the south-east side provides micro climatic effect to ensure wind flow through the site allowing enough cross ventilation. Another strength is the fact that there is no dominant mid rise and high rise structures around, so daylight and view of landscape can be used at its best advantage.

**2.2.2: Weakness:** A weakness of the site is the position of the spinning mill. Being right beside the site, it adversely affects the aesthetic value of it. Another weakness includes the limitation of proper transportation provision from the main city.

**2.2.3: Opportunity:** As the site has the undulating surface and mild height variations there is an opportunity to design interesting spaces with landscape and within built forms.

**2.2.4: Threat:** There are a lot of trees in the site which might be reduced in number if the design doesn't care about the environmental issue. Other than there is no threat I could find here.

## Chapter 3: Case Study

### 3.1: Center for Environmental Planning and Technology, Ahemdabad

#### 3.1.1: Introduction

Center of planning and technology was established by Ahemdabad education society (A.E.S.) a premier voluntary and nonprofit organization - to provide integral approach to training, education and research in architecture and planning. From its inception, primary focus of academic program has been on sustainable development of human settlement and improving quality of life of urban and rural populace through better success to employment opportunities, infrastructure services and housing.

The campus houses:-

School of Architecture (1962)

School of Planning (1972)

School of Building Technology and Sciences (1982)

School of Interior Design



Figure12: Center for Environmental Planning and Technology

#### 3.1.2: Project Details

- SITE AREA: 18,279 sq.m.
- BUILT UP AREA: 7544 sq.m.
- LANDSCAPED REA: 1469sq.m.
- YEAR OF CONSTRUCTION: 1962
- ARCHITECT: B V .Doshi

#### 3.1.3: Location

CEPT campus is located amidst of many institutions of Gujarat university campus with road on three sides. The site was previously occupied by brick kilns hence had slight undulated topography. (1991)

### 3.1.4: Approach

- The approach has been designed such a way that it remains involving and offers a sequential exploration of the spaces and view.
- One main entrance divides the pedestrian and the vehicular movement,
- From the gate itself one can feel the drastic change in micro climate maintained within the campus.

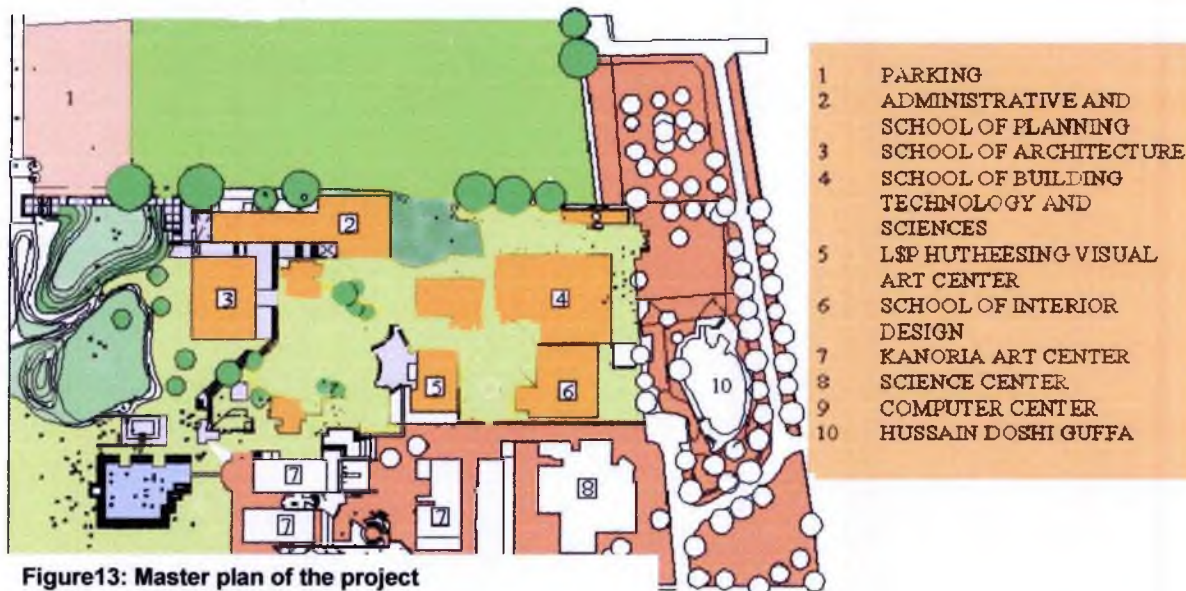


Figure13: Master plan of the project

### 3.1.5: General planning

The overall planning of the campus is based on central courtyard with built masses on three sides and thick green belt on the fourth side gives the desired protection from the hazards of the university main road.

### 3.1.6: Form

- School of architecture is located on the north side of the site.
- Building is designed to create shaded areas of multistage.
- The architect has very expertly handled the existing contours on the site and has created interesting play of levels.
- The open as well as semi-shaded areas have been very well merged with the undulating topography confirming
- with the architects philosophy of "classroom sense inside and outside"



Figure 14: Play of levels

- The volume created and voids generated are very interesting. Suits the purpose very well apart from being functional the simplicity of form with marvelous play of volumes and voids makes it visually pleasing. It is expensive of its function at the first look.

### 3.1.7: Architectural system

- It comprises of parallel walls, follow a typical section this typical section is altered at every point to create a multiplicity of spaces and variety within the school. Apart from providing:

- North lighting,
- Visual connectivity,
- Variety of volumes,
- Cool basements,
- Multifunctional spaces, and
- Air movement



Figure15: Landscape design with trees and hard surface.

### 3.1.8: Internal planning

- The planning is simple and functional however the future projected plan may make the compactness a serious problem.
- Activities are properly arranged as far as we respect the Architect's philosophy.
- The best part of planning seems to be the comfortable working environment in the studios.
- The internal circulation becomes too heavy in case of external discomfort able Conditions what so ever be the extent.
- The planning of studios gives flexible furniture layouts with comfortable lighting and ventilation.
- Combination of three zones i.e. administration, library and school of planning doesn't seem quite satisfactory as one is a source of disturbance to other.

### 3.1.9: Theory classes

- The flexible furniture of the space helps in several seating configuration and attract students from other areas.



- Climatic comforts have been achieved by shade but lack audio and visual privacy makes this space a bit “unfit for the states use.”
- The audience sits on the steps created, an environment for free interaction.
- The lecture halls have high degree of habitability.
- The functional aspects include right kind of ambience, stepped sitting, suitable built in furniture and minimum factors of distraction.
- Moreover the halls fit nicely in the given architectural system.



Figure 16: View of the administrative block



Figure 17: Semi open space used as entrance lobby and congregation space

### 3.1.10: Design studios

- The design studios are designed in a manner of a factory with north-south axis for the studios as each studio receives sufficient natural light from the north and breeze penetration is facilitated from the south side.
- The duplex section of the studio has been designed for easy communication
- between two studios and the surrounding space but at the same time is at some times audio-visually disturbing too.

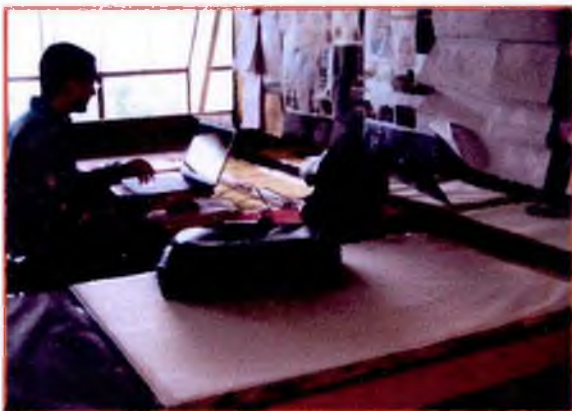


Figure 18, 19: Individual work stations in studio

- The space usage pattern reflects independence in the working party of individual student. The area of the studio is 36' X 51' is flexible in furniture layout.
- For visual privacy and individualistic environment students subdivide the space with movable partitions which provide adequate display area for exhibition of the student work and pin-up space while working.
- Entry to the studio is through a large pivoted door 10' X 10' the scale of which gives the feeling of invitation to the working environment.
- The north side has height inclined glare free uniform light important to the kind of activities to be performed inside the studio.
- However for ventilation purposes swinging wooden panels have been provided to collect the southern wind and recessed deep inside to avoid glare.
- This arrangement on one hand provided to collect the southern wind and recessed deep provided to collect the southern wind and recessed deep inside to avoid glare.
- This arrangement on one hand has certain drawbacks and at the same time as the windows is placed too high for any interaction with surrounding and also gives a feeling of privacy and claustrophobia.

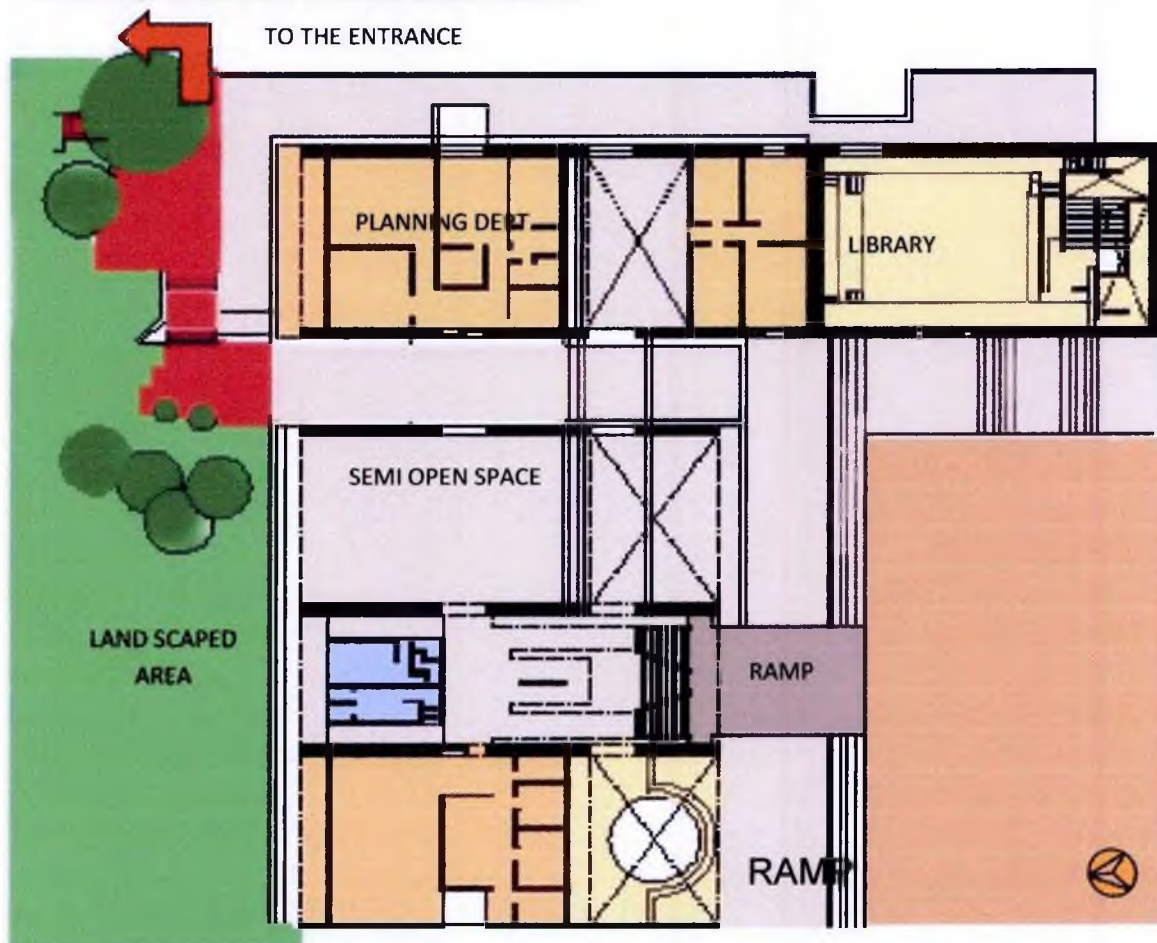


Figure 20: CEPT, site plan

### 3.1.11: Special features of the studio

- The physical scale in feet and meters engraved on the concrete beam gives to the students a sense of architectural scale which helps in their design process since one
- Doesn't have to stipulate about a certain distance physically.
- The student feels that this helps them relate physical measurements to the built environment and helps them in their design thought and transfer them on the sheets.



Figure 21: Work station



Figure 22: View from the studio

- The design studios held in informal way in the concept of open exchange of knowledge which can be observed often

### 3.1.12: Library

- The CEPT library is placed away from the main school building and is located on the first floor of the administration wing.
- The orientation of the block in north-south direction with a high north light for uniform illumination of the reading areas.
- The library is small in 56' X 59' + 10' X 19' but the seating and book storage is properly done. A general reading area is provided for specific reading.
- Visual and audio distraction is avoided as per the location away from noisy main school area.
- Reading areas are well illuminated.
- Students feel that there is lack of seating spaces for efficient use of library.

### 3.1.13: Thesis room

- A special feature of the school is the provision of thesis room near the library in which the thesis students can work in groups of two or three.
- Moreover the library being close by can be used as desired by the student

### 3.1.14: Basement

The basement has been designed as a multifunctional space. It is a very active space of the campus as one side of the rising contours that protect it from the road thereby helping it create its own environment and on the other side are the combinations of steps leading to other active spaces of campus i.e. the central courtyard thus avoiding north and south walls. This space is being put to use for number of activities some of which are observed as stated below



Figure 23: North light in studio



Figure 24: Steps from basement to the architecture studios



Figure 25: Ramp, gathering space after classes



Figure 26: View of the ramp

### 3.1.15: Circulation

- The courtyard and the basement circulation has been designed as open and on a very large scale where as the circulation inside the building is very restricted one as
- Available area has been used for maximum utilization of space and compactness of design.
- Hence most of the interaction between students and the faculty member occurs in the courtyard and basement.
- The staircase entrance to the studio block is very interesting and on the human scale.
- The extent of informality is to such a point that while going to one's own studio one has to pass through senior's studio-along the edge of the mezzanine so that juniors don't remain totally ignorant of the proceedings in senior classes.
- Movement pattern is Loosely structured Meandering in nature



Figure 27: Stairs to the studio

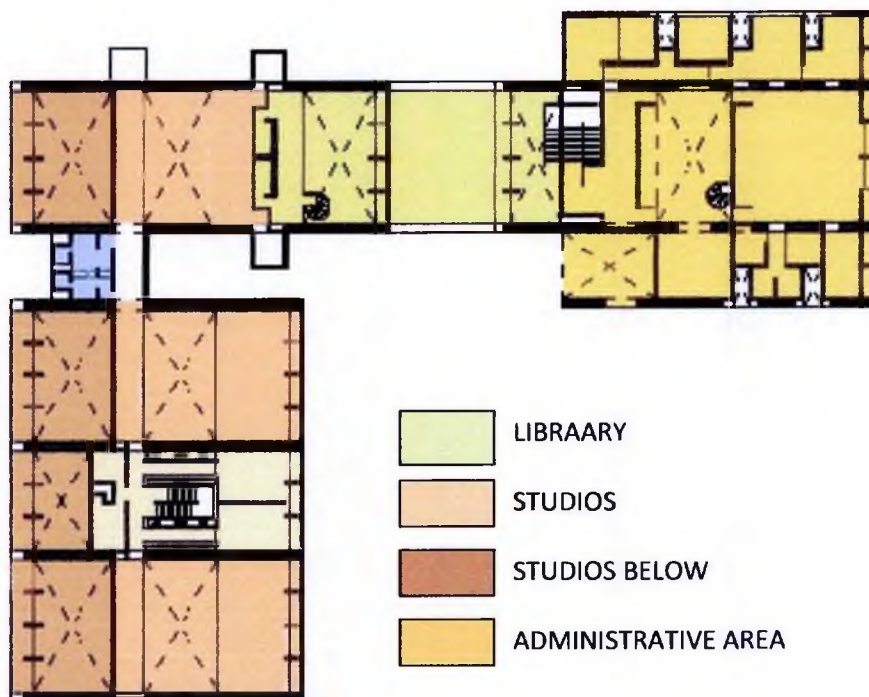


Figure 28: First floor plan

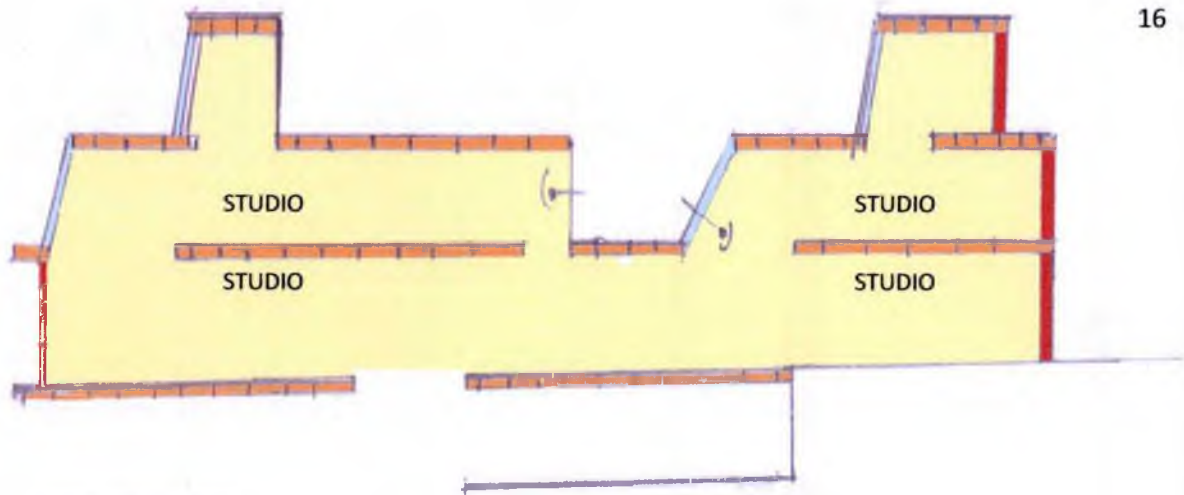


Figure 29: Section

### 3.1.16: Landscape

Extremely well linked with internal spaces and serves the purpose very well.

### 3.1.17: The central courtyard

- The courtyard forms another very attractive space within the campus and provides a relaxing environment to the students and faculty and supposedly is the nodal point of the various pedestrian entries.
- They can have refreshment in the canteen which is very informal and provides the interaction configuration of students.



Figure 30, 31: Paved area outside canteen

Figure 32: Lawn outside administrative area

### **3.1.18: Others zones of interaction**

- Entrance walkways, multiuse spaces, stairs and steps, open air seating, steps to the courtyard.
- The basement is linked with courtyard gradually by creating different levels in between thus giving a visual control of surrounding environment and also diminishing the feel of climbing.
- Steps have multipurpose use i.e. during film shows and other group activities.
- Link presents in informal presentation for the students.
- Wall of the work shop acts with murals acts as a fantastic back drop for students involved in discussion and also acts as physical boundary providing privacy and security.
- Staircase entrance is a great point of interaction as it connects the courtyard with the stairs. The scale of the stair is also very comfortable and is visually very inviting.
- It forms the part of circulation from the studio to the library and the basement.

### **3.2 Conclusion**

The case studies have helped me learn about the quality of space required for designing a University for creative people. It has also helped me broaden my knowledge about the zoning, functional analysis, light quality, circulation about the institute. It will surely help the studies and its learning in my design and help me make my design a successful one. The study will help me visualize the design in reality and also ensure of the precision in my design.

## **Chapter 4: program development**

### **4.1: Introduction**

The requirement and program of the project is originated from the basic functions of the institute and also the demand of the client. The program leads to the success of a design. Individual space requirements were determined calculating the minimum space requirements of the functions. Some functions were also added later for its necessity that I felt.

### **4.2: Rationale of the project**

The program of the University of Creative Technology includes five departments: Department of Architecture, Department of Graphic Design, Department of Interior Architecture, Department of Fashion Design, Department of Fine and Performing Arts. All the Departments themselves require a Departmental office which includes Head of the Departments office for each of the Departments 250 sft needed for per room, Teacher's room 25 sft needed for per teacher, Teacher's common room, storage to keep all the necessary documents.

A workshop space is essential for mainly Architecture and Fashion Design Departments. Students have to use different types of machineries to make their work beautiful and neat. Total space allocated to keep all the machineries and workspace for the students of the different Departments is 5000 sft.



A Library is required for 200 students which will include a librarian room where all the records will be kept, a photocopier machine space which will take 250sft of space. The main library will be divided into two sections. The book section and Material section and both of the section will take 2000 sft of space. For sitting 3000 sft of space required of which 15 sft is kept for per student.

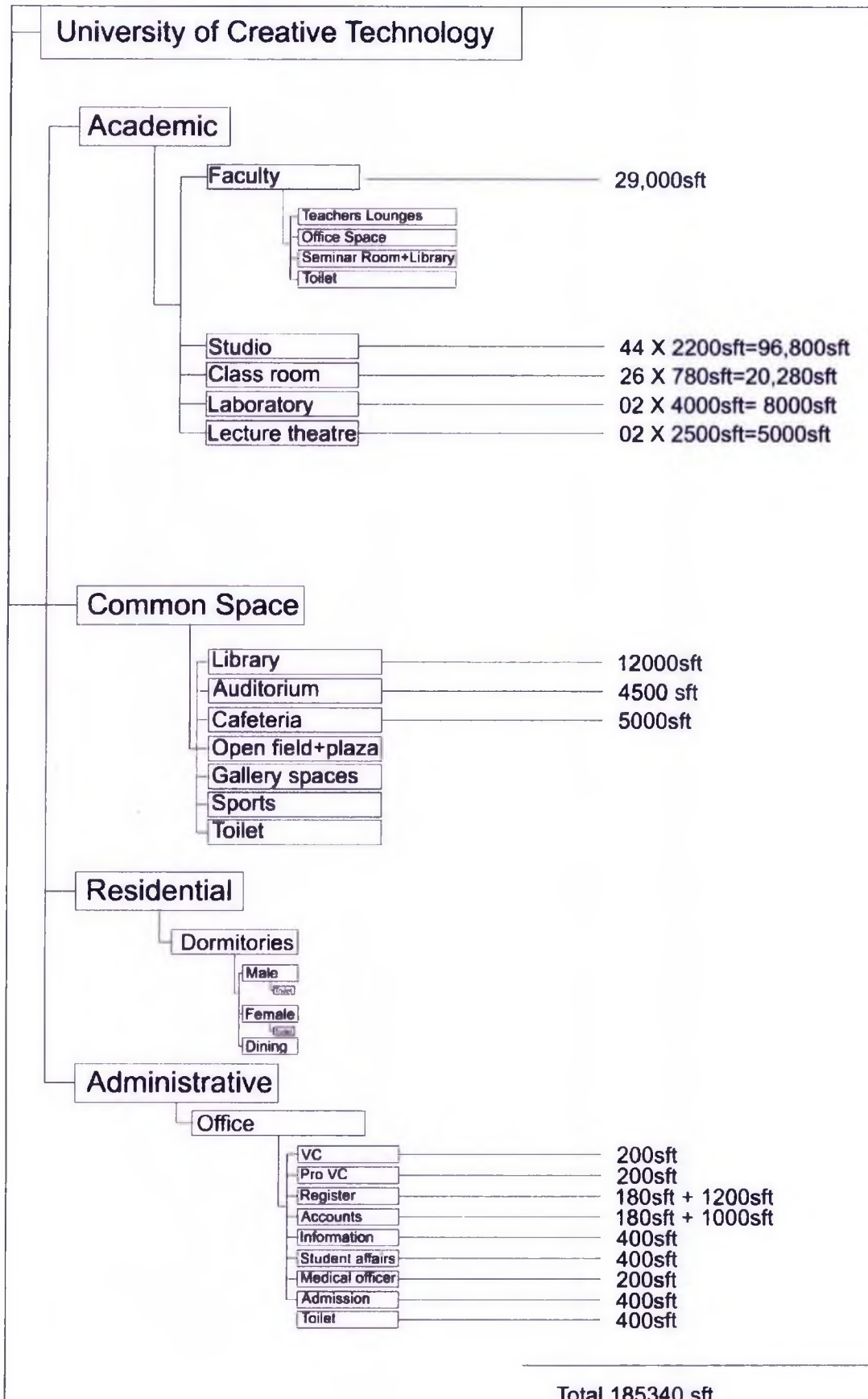
An Exhibition Gallery of 8000 sft is specially provided for to display his works the paintings which he has done through his lifetime. Another Exhibition space is provided for the students of the institute to display their work.

The Central Cafeteria works as the main interaction space for the students. Here 3000 sft of space required for 150 seating. This Central Cafeteria will also serve the Administrators and the Teacher's.

There is a Auditorium of 5000 sft for the students. It will be used for different performances of the performing art students as well as for any cultural events. Beside the auditorium there are two lecture halls are needed for the lectures by guest teachers and juries of the students of several departments.

The Administration block will control the total institute. The administration includes a General office of 200 sft, Accounts office of 200 sft, Curriculum office of 200 sft, VC room with toilet, Pro VC room, Registrars room, and Asst. Registrars room. It will also have a meeting room for performing important discussion and meeting.

The programs, their brief description and their minimum space requirements are given in the next page.



Total 185340 sft

### **4.3: Conclusion**

Knowing the program is very essential at the initial stage of design. If the accurate space requirements are known and the programming is done accurately, then the area calculation will help decide the size and position of the different functions. Program should be taken into account very seriously and use them to lead the design into an efficient one.

## **Chapter 5: Design Development**

### **5.1: Introduction:**

At the start of the design process, based on bubble diagram and design matrix, the dimensions of required spaces are determined. Along with these, the functional requirement and zoning were done. These helped me to understand the relationship among different functions and their efficiency in serving their own functions as well as to allow uninterrupted functioning of others.

### **5.2: Conceptual development**

The initial concept of my design was to utilize the site forces, such as plantations, topography, the soothing rural skyline and water in a way that the generation of alien functions and activities in that rural settlement could be blended with reciprocal responses. So at the beginning of the design I tried to identify the inherent zoning of the program on the basis of topographical drawing, plantation pattern and air flow diagrams. These diagrams helped me to create bubble diagram of the functions which gradually lead towards more detail functional arrangements with the scope of creating interesting spaces.

When I start the master planning of the project with the tentative zoning, I start thinking about a focus point which would guide the circulations throughout the landscape and built forms easily where the point would sustain with a vibrant and active surrounding as well. To generate such a space I imagine a big banyan tree on a round platform and that become the focal point which also symbolizes the long traditional education system of this subcontinent.

The remaining part of the chapter is arranged with the chronological sketches, drawings and images to make the design process clear to everyone.

5.2.1: Development I [Idea generation]



Figure 33: Topographical Drawing

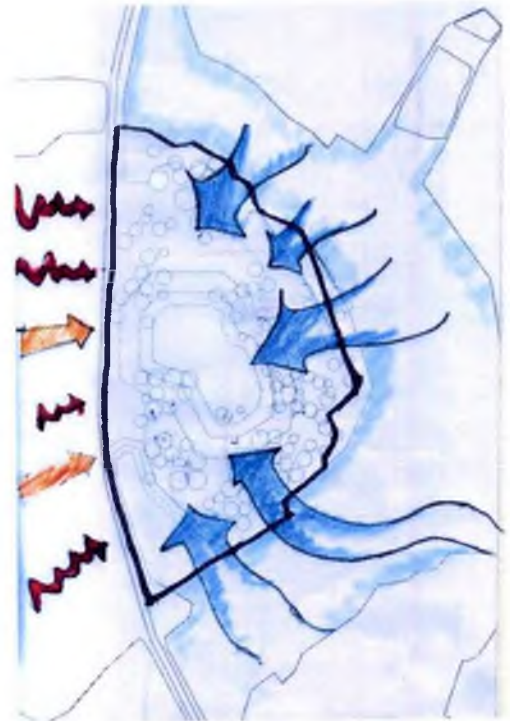


Figure 34: Positive and negative pressure



Figure 35: Bubble diagram



Figure 36: Conceptual sketch (Lesson under Banyan tree)

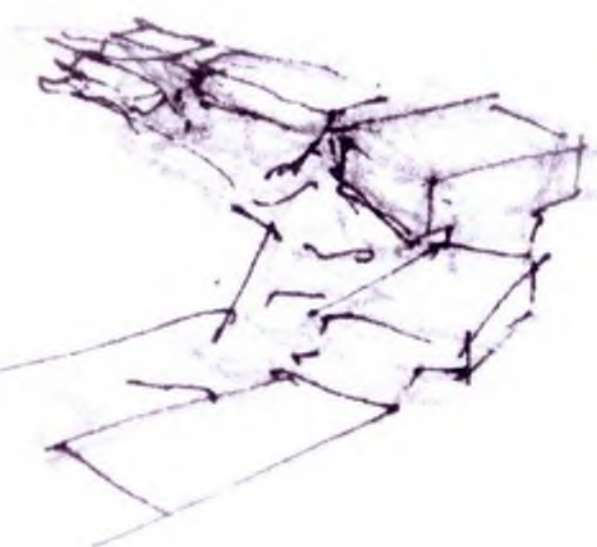


Figure 37: Conceptual sketch (Mass arrangement)

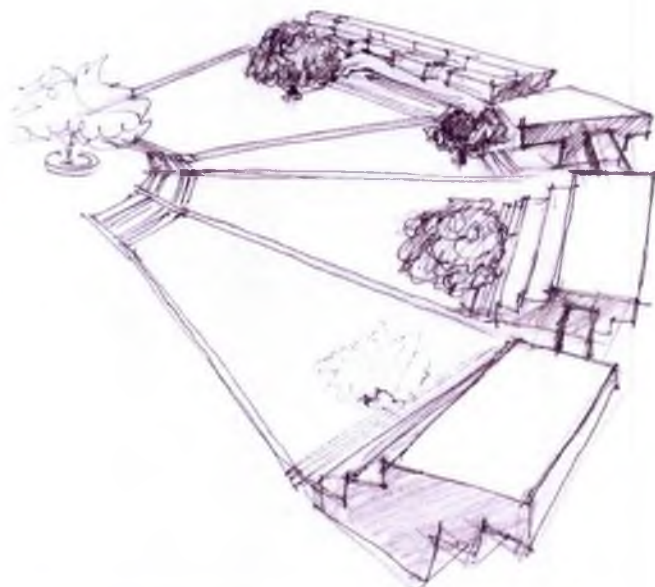


Figure 38: Conceptual sketch (Idea of master plan)

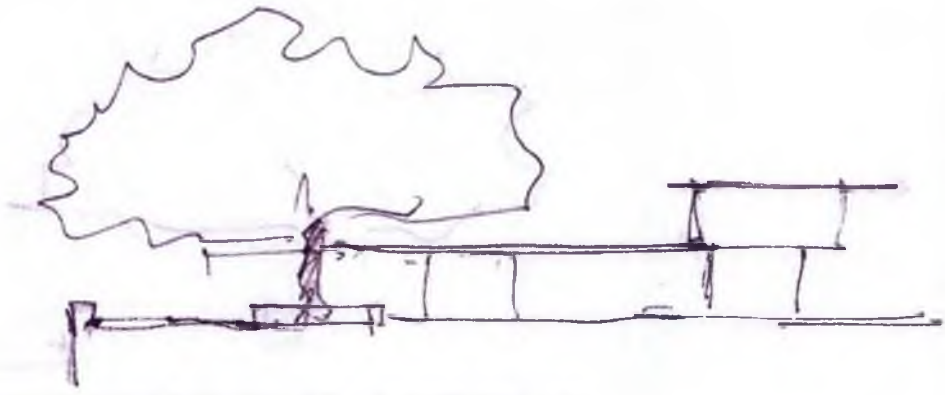


Figure 39: Conceptual sketch (Section of the plaza with big tree)



Figure 40: Conceptual sketch (plaza with big tree)



Figure 41: Conceptual sketch (Section of the plaza with big tree)

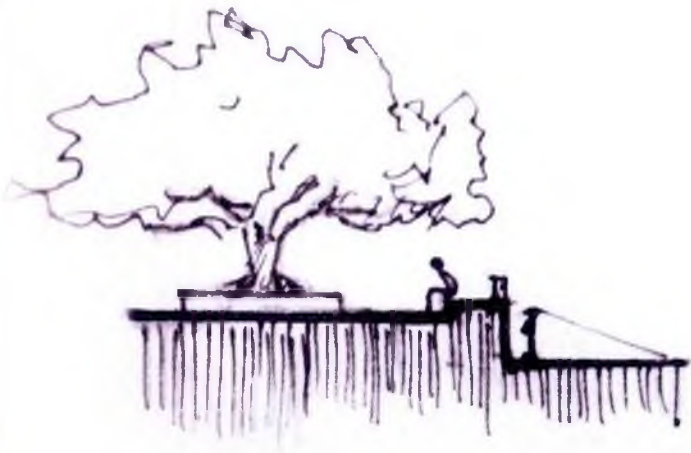


Figure 42: Conceptual sketch (Section of the plaza with big tree)

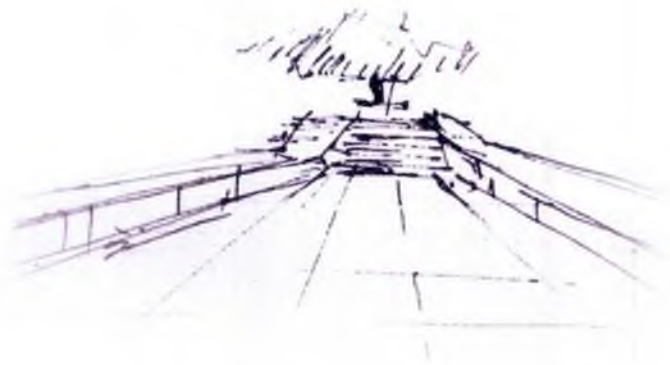


Figure 43: Conceptual sketch (Perspective, towards elevated plaza)

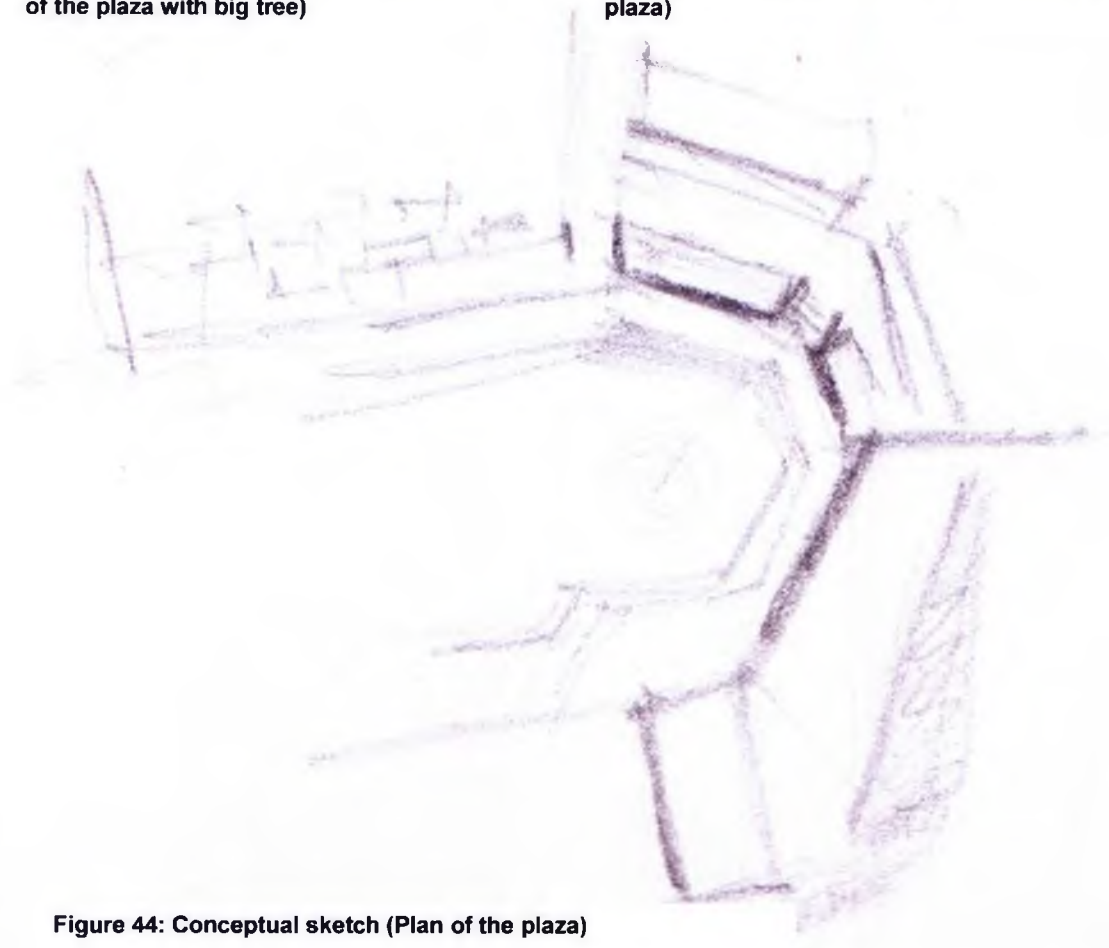


Figure 44: Conceptual sketch (Plan of the plaza)



5.2.2: Development II [Zoning]

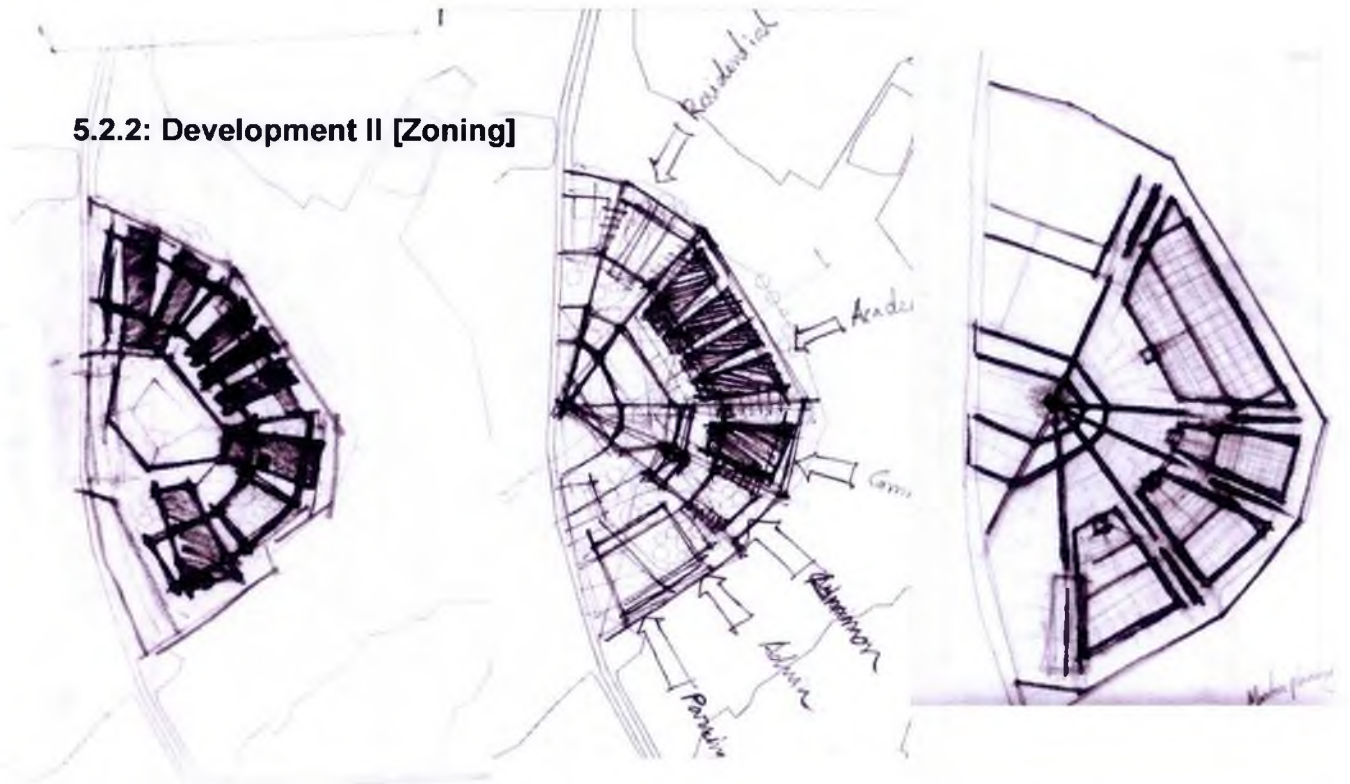


Figure 45, 46 & 47: Sketches (Zoning)



Figure 48: Image of mass model



Figure 49: Conceptual sketch (Perspective of the masses)

### 5.2.3: Development III [Functional development]

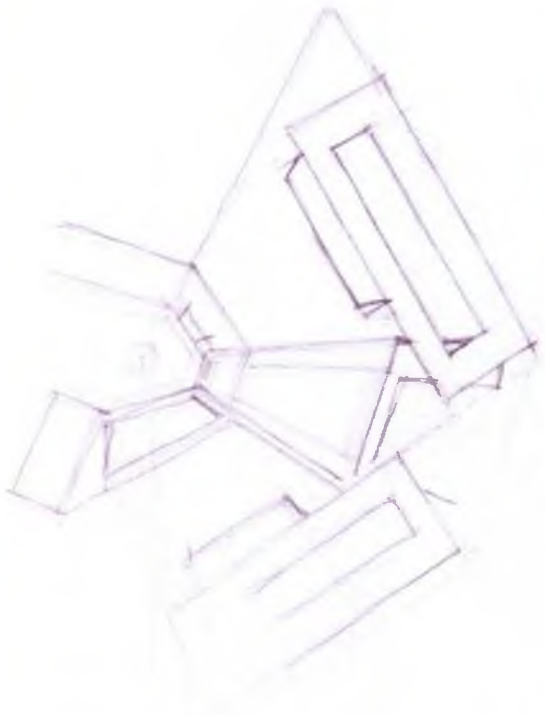


Figure 50: Sketch of the master plan

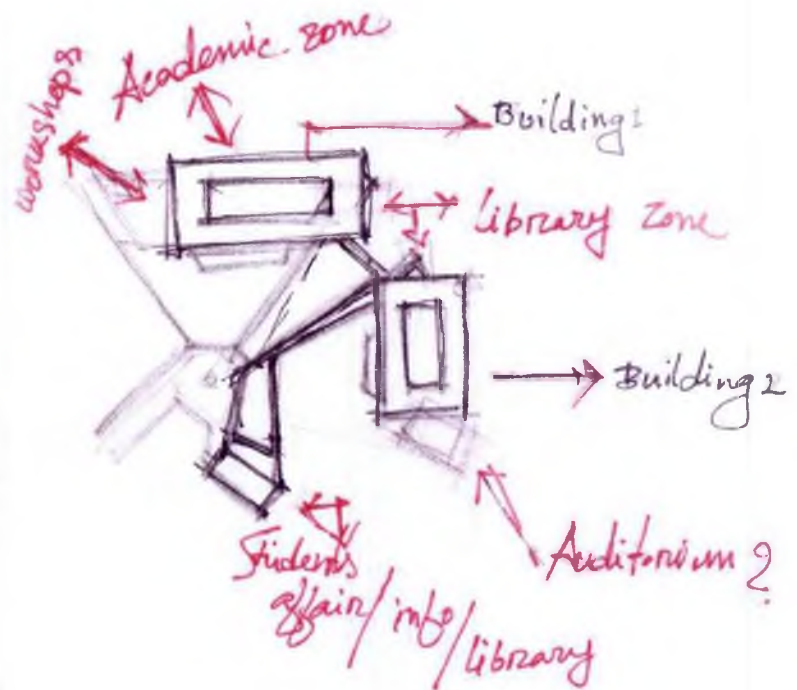


Figure 51: Sketch of function distribution

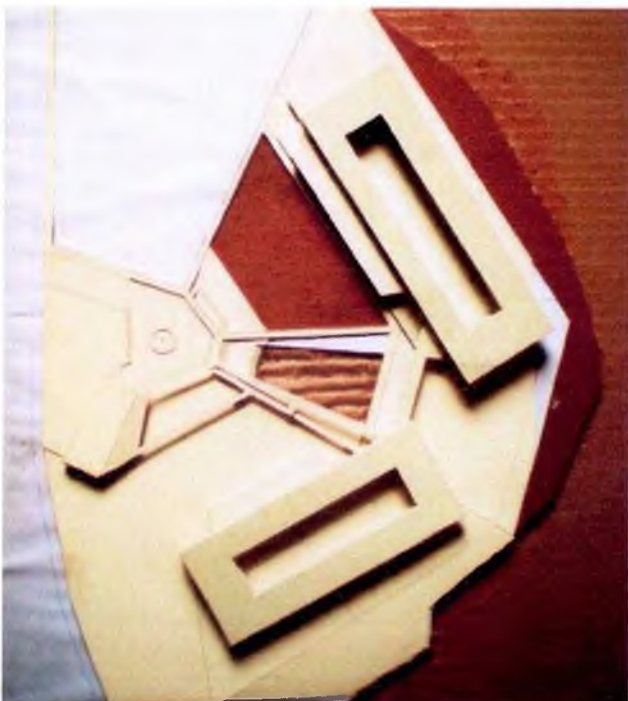


Figure 52: Image of mass model with landscaping idea

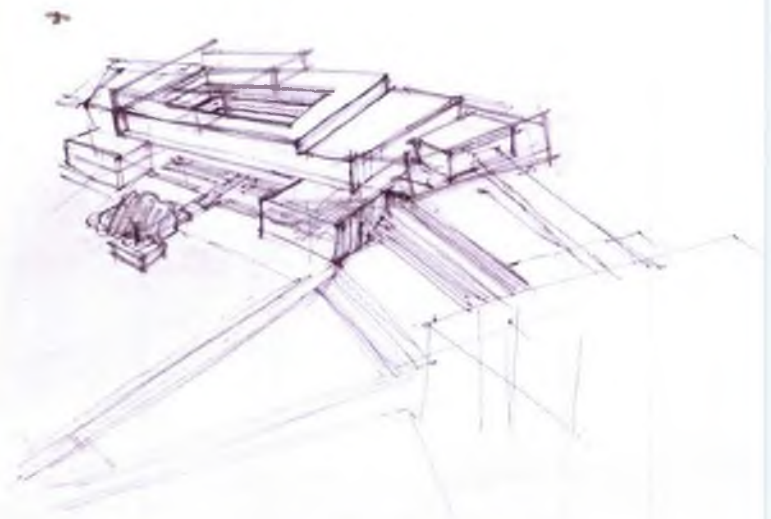


Figure 53: Conceptual sketch (Perspective of the masses)

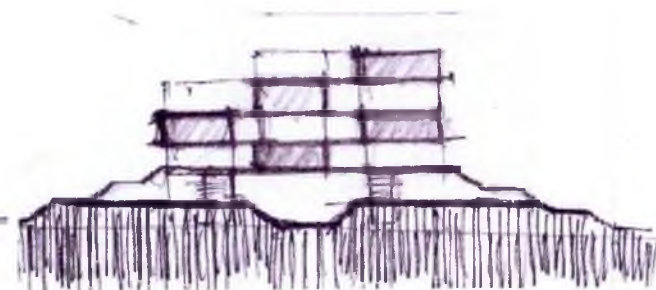
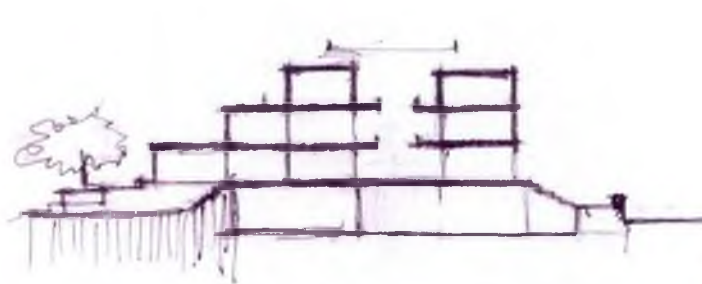


Figure 54: Conceptual sketch (Section of academic Building)

Figure 55: Conceptual sketch (Section of academic Building)

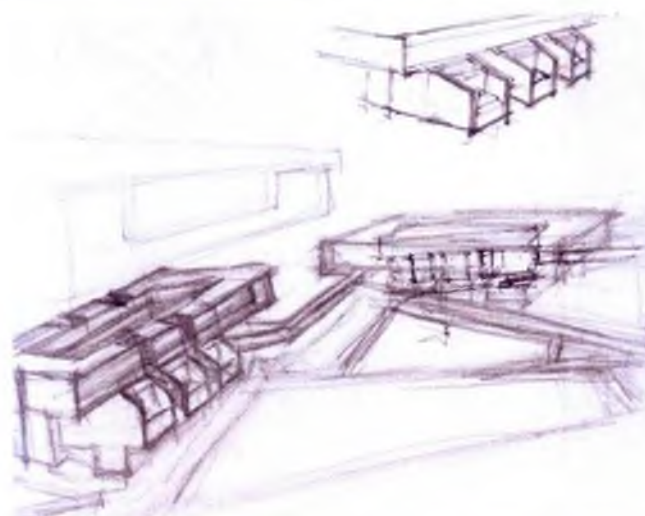


Figure 56: Conceptual sketch (Perspective of academic building)

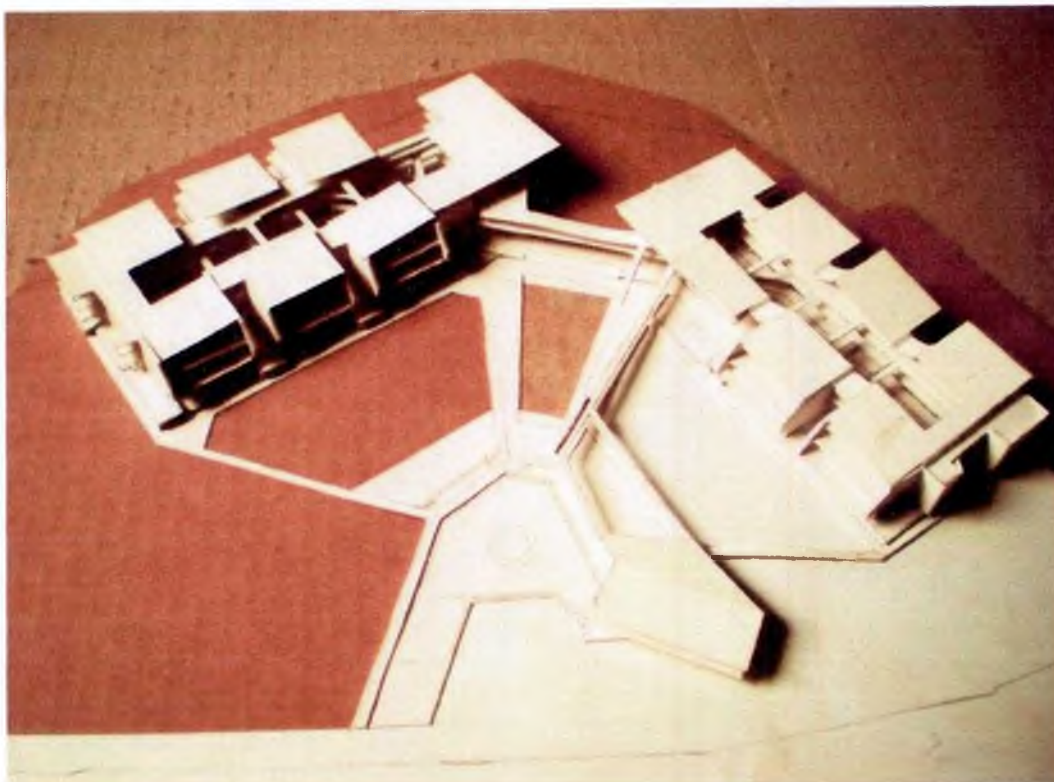


Figure 57: Image of model, expressing the idea of elevations and landscape

### 5.2.4: Development IV [Final drawings and images]

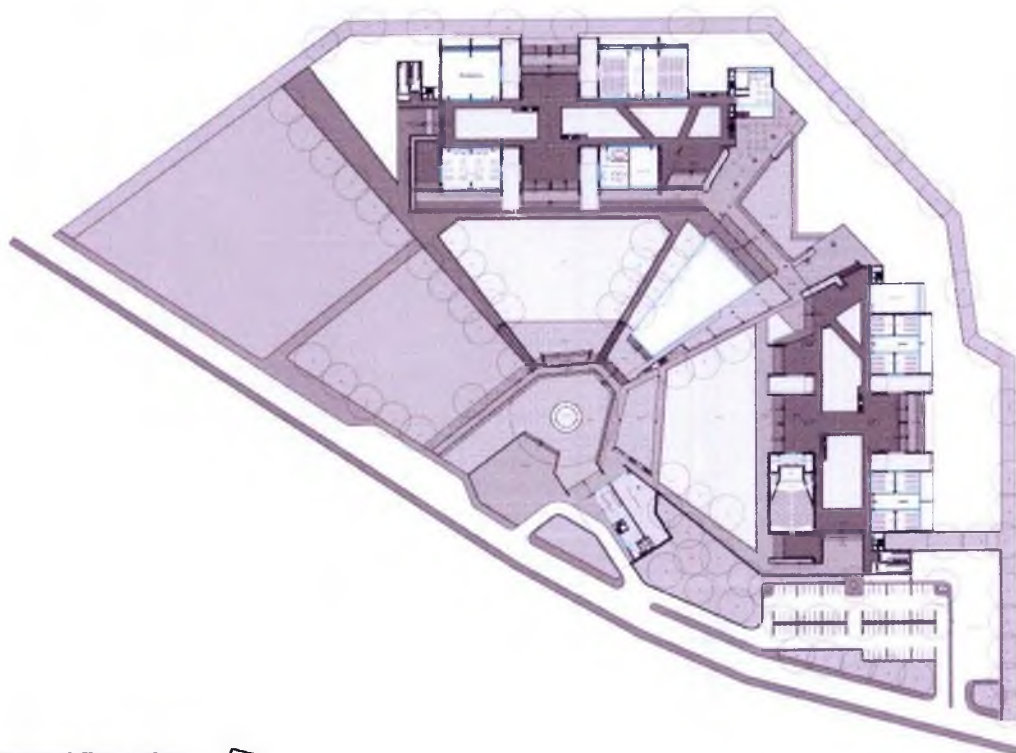


Figure 58: Ground floor plan 



Figure 59: First floor plan 



Figure 60: Second floor plan



Figure 61: Third floor plan

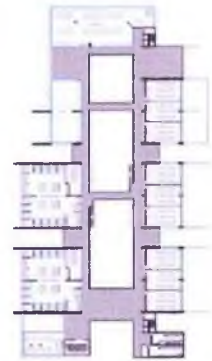


Figure 62: Section A



Figure 63: Section B

Figure 64: Section C



Figure 65: Section D



Figure 66: South West Elevation



Figure 67: North East Elevation



Figure 68: West Elevation



Figure 69: East Elevation



Figure 70: South East Elevation



Figure 71: Roof plan

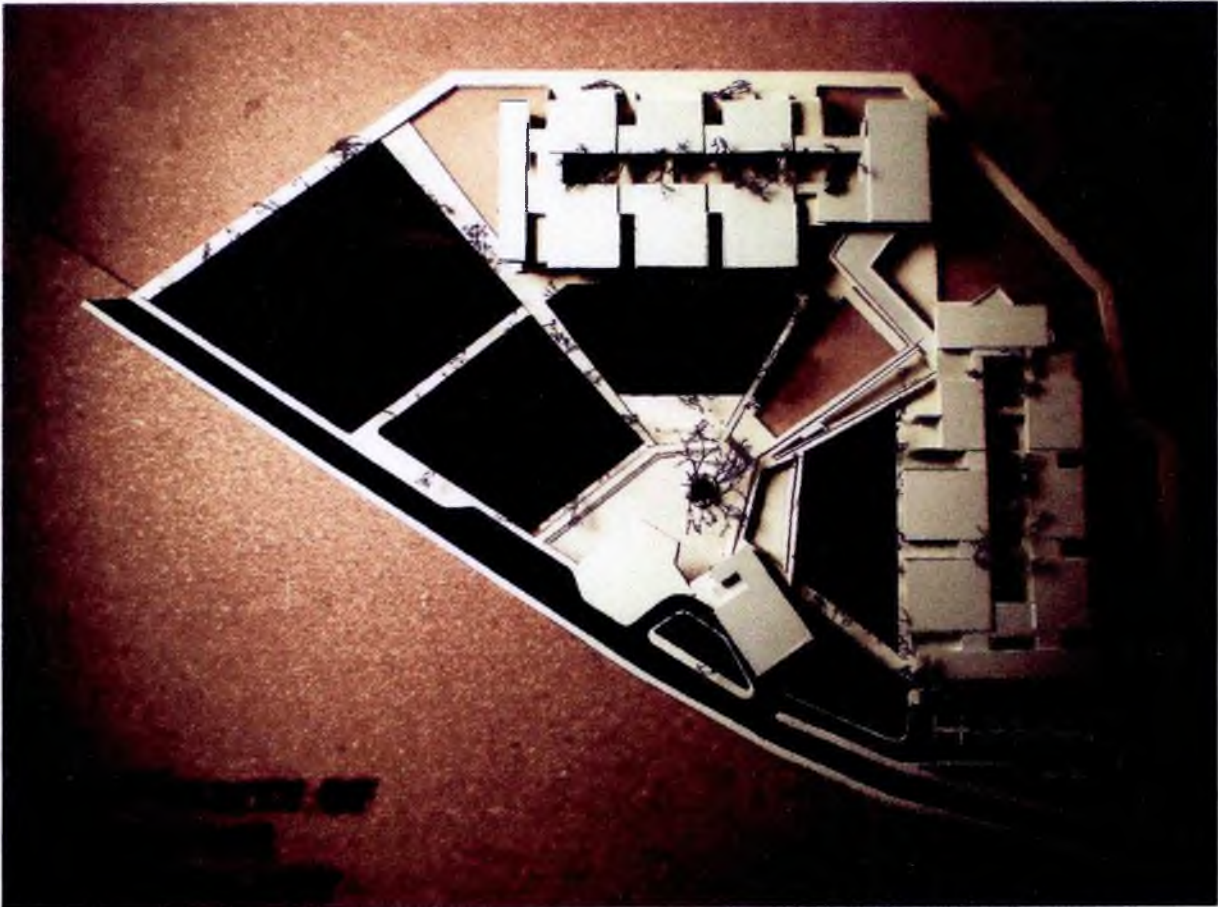


Figure 72: Image of the final presentation model

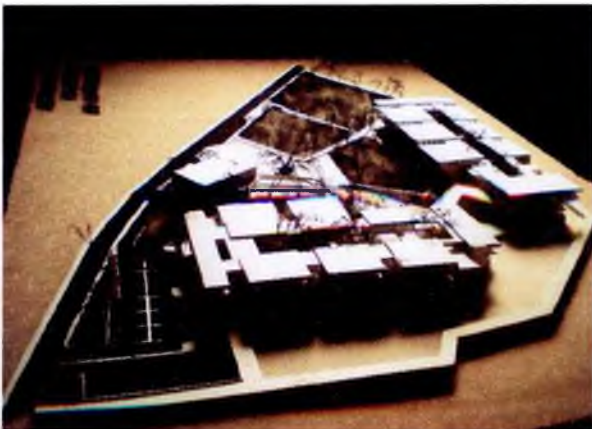


Figure 73: Image of the final presentation model

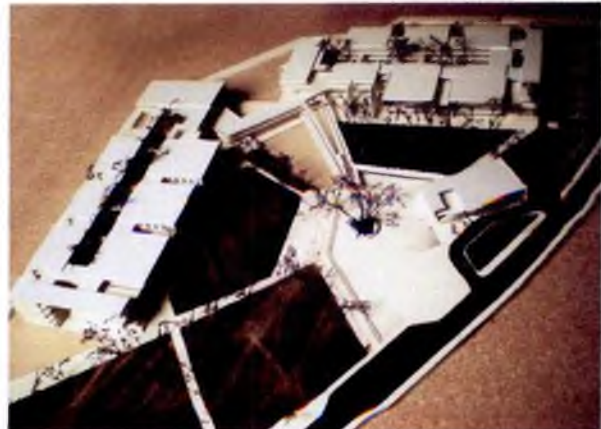


Figure 74: Image of the final presentation model





Figure 75: Areal view of the project

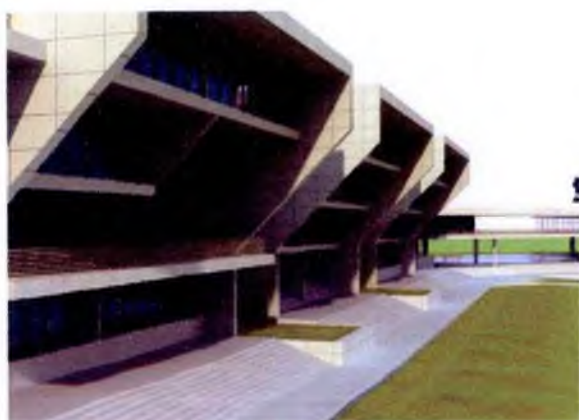


Figure 76: View of academic building 1 from inside



Figure 77: View of academic building 2 from inside



Figure 78: View of library and cafeteria



Figure 79: View of the academic building 2 from outside



Figure 80: Another view of library and cafeteria



Figure 81: View of the academic building from outside



Figure 82: View of the internal court of academic building 1



Figure 83: View of the internal court of academic building 2



Figure 84: Areal view of the project



Figure 85: View from administration building towards academic building



Figure 86: View of an internal space beside a design studio

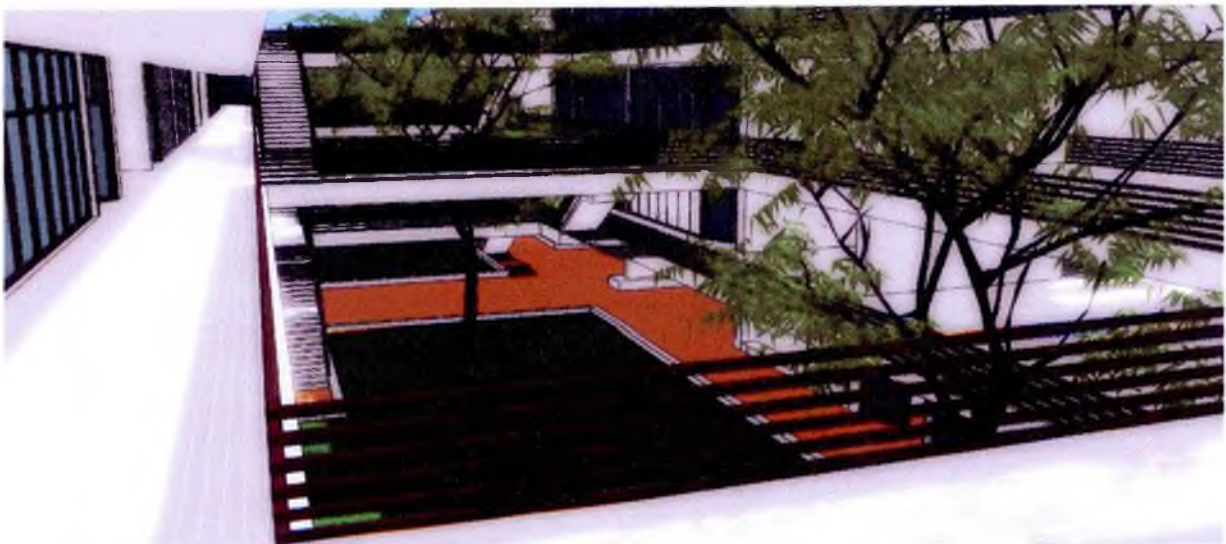


Figure 87: View of the internal court of academic building

### **5.3: Conclusion**

Designing a University is an interesting task in a sense that here the designer gets the opportunity to work with different types of spaces. Particularly this project has the scope to play with nature and built form as the site is totally an uninterrupted natural settlement with contours, plantations and water. I personally enjoyed very much the whole process of this design as the graduation final project of my bachelor degree. During the design process I learnt many new things which will help me throughout my career I believe.