HI TECH UNIVERSITY OF ENGINEERING AND TECHNOLOGY

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Abstract

Industries with high value adding in research and development are generally recognized as Hi-Tech industries. The idea of Hi-Tech Park speaks to a method towards information concentrated industrialization. As data innovation has been apparent as the top need segment by concepts making move from agro to modern economy to data economy, most Hi-Tech Parks are being produced to give a scope of framework and regulatory bolster administrations to make a proficient workplace for advancement of IT, hardware, information transfers, building, bio-innovation and related industry. The proposed Hi-Tech Park at Kaliakoir is conceived as an incorporated, ultra-present day techno township that would be intended to draw in a portion of the extensive transitional organizations and to serve the world-class business undertakings. This perhaps considered as a standout among the most critical steps to the proposed change of Bangladesh from agro to mechanical economy to information based industry. There is likewise a proposal for university to continuation of making world class learning. It will contain world-class laboratory facilities with a full campus environment. The goal of this project is to make world-class leader on feature It information and Bio- technology science sector. So we tried to understand university issue in such an industrial zone. How does it work in other countries, what will be the benefit from this university campus and does it work. By taking interview student we try to find to their desire space in campus. So using these several studies, journal guidelines, through structure methodology, the implication of this project would be to invent a perfect and workable university campus which help to make expert engineer to give their idea for country development.

List of Abbreviations

BCC	Bangladesh Computer Council
BCR	Benefit –Cost Ratio
B.Eng.	Bachelor in engineering
EIRR	Economic Internal Rate of Return
GoB	Government of Bangladesh
KHTPA	Kaliakoir Hi-Tech Park Authority
NPV	Net Present Value
R&D	Research and Development
UGC	University governing council

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CHAPTER ONE

INTRODUCTION

1.1 CHAPTER BRIEF

This chapter deals with all the basic and rudimentary information and facts regarding this project. Tried to accumulate them in an understandable sequence with adjacent references. Hopefully, after reading this chapter one would obtain a very basic idea about the project.

1.2 PROJECT BRIEF

Hi-Tech University of Engineering and Technology

Location: Kaliakoir, Gazipur

Hi Tech Park (Block V)

Site area: 45 acres

1.2.1 THE CLIENT

The government might be decided to develop the proposed university by itself. Alternatively, the development of the university might be offered to the private investors. Since the Investment would be high to develop buildings and laboratories, the government may relax some of the need for existing private university rules for the private sector to invest in the Hi-Tech University of Engineering and Technology.

1.2.2 THE SPONSERS

Bangladesh Computer Council (BCC)

Ministry of Science and Information & Communication Technology

Government of the People's Republic of Bangladesh.

1.2.3 UNIVERSITY FECULTIES

The proposed Hi-Tech University of Engineering and Technology should have programs that can meet the demand of Hi-Tech manpower for the global IT Industry. It is, therefore, thought that the University should have started with the following faculties. This decision is made by BCC.

i. **Computer Science (150)**

ii. Computer Engineering (150)

iii. Communications Engineering (50)

iv. Biotechnology (50)

v. Mechatronics (50)

The figures in the bracket shows the probable intakes in the program.

1.3 PROJECT BACKGROUND

Industries with high value adding in research and development is generally recognized as Hi-Tech industries. Now a day it is very popular concept for development of a country. Bangladesh have advancement on labor that's why Bangladesh get huge achievement in garments sector, but in this new era open a new door in front of Bangladesh which is the

knowledge base industry. For this new sector Bangladesh need more proper trained up manpower with proper skill to take this data base economy market.

University is the tertiary educational framework for nation. Hi Tech university of Engineering and Technology offering B.Eng. in software engineering, programming building, mechatronics and biotechnology subject. Hi Tech university of Engineering and Technology will offer this subjects with high-class research center offices alongside appropriate grounds.

Through university we can able to build up skilled professional manpower to pick up this newly emerging market based on data base economy. It is truly a new door for Bangladesh so that why government of Bangladesh (GoB) take some important initiative on this sector. Government try to open to open Hi-Tech Park in many district like GoB already start work Jossor and Rajsahi Zila. According to (Bangladesh computer council, 2002) for carrying out an economic analysis of the proposed hi-tech park at Kaliakoir, three scenarios have been considered based on growth projections. Net Present Value (NPV), Benefit –Cost Ratio (BCR) and Economic Internal Rate of Return (EIRR) have been calculated for the three cases: Slow Growth, Medium Growth and High Growth. First Phase of the project is expected to be completed in two years and the life of the project has been assumed to be 20 years although this may be much longer. For calculating NPV, 15% Discount rate has been considered. NPV has been found to be positive for all the Alternatives including the slow-growth projection. Similarly BCR is also greater than one for all the alternatives including the slow-growth

projection. EIRR has been found to be 23%, 29% and 38% for slow, medium and high growth projections respectively, indicating That the project would be economically viable even if the growth rate is low. High growth Rate obviously would generate greatest benefit for the national economy.

Kaliakoir HI-Tech Park is huge project from GoB. Its total 135 acres area. BCC planed a master plan with the help of Department of Architecture Bangladesh, Ministry of Housing and public work. They divided this land into five block. Block no five is allocated for HI-Tech University of Engineering and Technology which is 45 acres land. The main circular/ring road passing through all the blocks eventually moves towards
Block V. Also approached through a second entry, by the side of this road at Block-V, the Hi-Tech University of engineering and technology is proposed.

The major object of this university will be to attract youth generation to set up an operation in data base economy in order to develop indigenous technological capability for the development of the local industries, and (b) to enter into foreign market by exporting state of- the-art technology products. A biotechnology R & D product could be an example of the first kind which can greatly help the local agriculture or agro-processing industry.

The location of the proposed project site is on the Dhaka-Tangail National Highway, about 40 km north-west of Dhaka city. The major part of the proposed site is located in Goalbathan mouza under Srifaltali Union to the west.

According to (Bangladesh computer council, 2002), the area mainly consists of agricultural land, bushes, human settlement and grazing land of animals, birds, insects and other lower living species. There is no natural forest within the project site although the whole area is a part of Madhupur tract forest areas. Rice and vegetables are grown by the local settlers of the area. Majority of the local people around the project site live on agriculture. Some are small traders, rickshaw pullers and day laborers leading a life below poverty line. Dwelling houses are made of locally available materials such as corrugated galvanized sheet, bamboo, straw and mud. A significant portion of the proposed site is covered by agricultural land. Mixed types of lands such as agricultural lands for trees and plants and homesteads are located in and around the site. There are some low-lying areas and wetlands on the northwest of the project site as well as outside the project site. It is expected that the existing land use pattern will be changed as the implementation of the project proceeds. The adjacent area is reasonably built-up and various infrastructure facilities such as electricity, telecommunication etc. exist in the area. Commercial shops and Latifpur bus stand are located approximately 0.5 km from the proposed site. The proposed site is located about 1.5 km southwest of the river Bangshi, a tributary of the river Turag. Project site and adjacent areas have two water regimes with plenty of water in monsoon and scarcity in dry seasons. During wet season, the rivers cannot contain water and overflow a huge land in and around the project site. The annual average rainfall in the vicinity of the project area is 2130 mm. The one hour rainfall pattern of Bangladesh is presented in Figure 3.3. For the proposed site, the one hour rainfall is 85 mm.

1.4 PROJECT RATIONALE

The significance of this project is that it is one of a kind; the very first government initiative a make University like this in a knowledge base industrial park area to support the park. This project will massively help to Hi-Tech Park for their R&D work and it will support a great number of our own intelligent manpower.

Moreover it will help to bright our feature because this project will not only produce skillful professional manpower but also it create literate intelligent human which is a great asset for a country.

1.4.1 Significance of the project in national context

- It's one kind of GoB first attempt to make such as faculty with full facilities. This university is much more focus on service oriented rather than any other university of Bangladesh.
- In large scale in benefit on our economy growth.
- We will get knowledge full and resource full person.
- We will able to compete with international market.
- We can improve our indigenous technology for our brighter feature.

1.4.2 Significance of the project in local context

- Base on this project the site surrounding will grow as R&D hub in feature.
- It will create a great and consistent job environment for local people

- It will impact on their environment and life style.

1.5 Reasons for the Selection of the project as B.Arch. Thesis

Designing a campus is a challenging project because university campus is total different environment rather than school and college campus. There is a lot of program complexity in university campus design and on the other side user group of this type of project is totally different firstly most of them just recently pass their teenage and enter into adult life so in this time period they cross a threshold of their life so that's why it is a another challenge to create a proper space for them. So by university campus design one can understand the functional and space complexity and how to combine them.

1.6 Project Objective

- To understand this type of faculties need
- How to enhance R&D work
- To provide a full phase international standard classroom, laboratory, library and working space.
- To provide a full phase university campus facilities base on University governing council (UGC), Bangladesh.

1.7 Scope and Limitation

Scope

- Detail architectural design

- Working it a definite user group
- Giving realistic solution to University campus designing
- Influence the social impact of this project
- Influence the economic impact of this project
- Influence the technological impact of this project

Limitation

- Scarcity of similar projects in Bangladesh
- For Hi-Tech park security is one of the major issue

1.8 Challenges

- Within this topography it will be a big challenge to keep it and design a campus properly.
- Understand the user age group is also a challenge here.
- Maintain international standard of faculty is an anther challenge.
- Integrate this university program R&D work with Hi-Tech park is a big challenge.

CHAPTER TWO

LITERATURE REVIEW; UNIVERSITY

2.1 CHAPTER BRIEF

This chapter deals with all the theories and literate regarding information and facts regarding different aspect on university and campus design. The topic under this chapter would profoundly help to understand university and campus relationship.

2.2 GENERAL DESCUSSION ABOUT UNIVERSITY

2.2.1 University

University is the tertiary educational system in our country, it is the largest academy in whole world. Universities typically provide undergraduate education and postgraduate education. “The word "university" is derived from the Latin universitas magistrorum et scholarium, which roughly means community of teachers and scholars”, According to Fortescue, J. 8 Mod. 163,

2.2.2 Definition of University

According to (Kelsey, 2007) (A Dictionary of Art,Science,Literature and Genaral information, 1911), said that, the first Latin word "universitas" alludes as a rule to "various persons related into one body, a general public, organization, group, society, enterprise, etc." At the time of the rise of urban town life and medieval societies, particular "relationship of understudies and educators with collective genuine rights as a rule ensured by contracts issued by sovereigns, prelates, or the towns in which they were found" came to be designated by this general term. Like different organizations, they were automatic and decided the capabilities of their members.

The first Latin word alluded to degree-giving establishments of learning in Western and Central Europe, where this type of lawful association was major, and from where the foundation spread the world over.

2.3 University campus and Hi-Tech Park

University is a place like garden where people come to gather knowledge like be bee gather nectar from flower on the other side Hi-Tech park is a full phase industrial area. So the question is why this two elements are combine in one boundary? Hi-Tech park is an industrial area that is true but it is a knowledge base industrial area. There is a lot of R&D base which can help a scholar to learn new technology and how this thing work. Many other countries in world also have such as like example like in India IIIT and other Engineering Colleges in Bangalore and Hyderabad, to support IT professionals in International Tech Park Limited, Software Technology Park of India, Hi-Tech City; newly built Multimedia University within Multimedia Super Corridor in Malaysia; and Singapore Science Park in close proximity to National University, Singapore. (Bangladesh computer council, 2002)

2.4 Campus Design Guideline

“A campus is the mirror of a college or university’s soul, reflecting its history, its culture and image, its management style, and even its future. It tells all who visit it how it thinks about itself and the way it expects others to judge it.” (Kelsey, 2007).

2.4.1 THE CAMPUS DESIGN CONCEPT

A designer need to concern when he/ she going to design a university campus it is important to give a friendly look to the visitors and for the campus users also it mostly like a village. A village where people can freely share their knowledge. The relationship with indoor space to outdoor space is very much important issue for campus design. Although there is different infrastructure in campus but perhaps it can be good design full campus on nature with this visual fabric

2.4.2 Landscape

Landscape is a very strong element for campus design in University campus mostly we deal with adult age person so it will work like mood swing element for them.
That is why landscape in campus is very much important element. One can learn very quickly with through the nature.

There are two type of landscape one is native landscape and other is manmade land scape. “The landscape will be treated with as much respect as the buildings. It is the landscape that, on the mature campus, creates visual impact and continuity; not the buildings. In heavy use areas of the campus and/or where a formal landscape is desired, it must be man-made or urban.” (Kelsey, 2007).

2.5 Motive of campus

Campus is a place for sharing where people come to share their knowledge with other and by this process they learn many think about their life and work. In campus young scholar share their work with other scholar, they share their idea, they argue with each other, they share their religious belief, unusual fact and fillings and so on. (Werner, 1991)

CHAPTER THREE

SITE AND CONTEXT ANALYSIS

3.1 CHAPTER BRIEF

Here try to gather all the information regarding the site itself. Location, climate, land use in surrounding area, SWOT analysis and others fall into the topic.

3.2 Area and Location

Figure 3.2.a: site location in reference

To country. Source: (Bangladesh Political map)

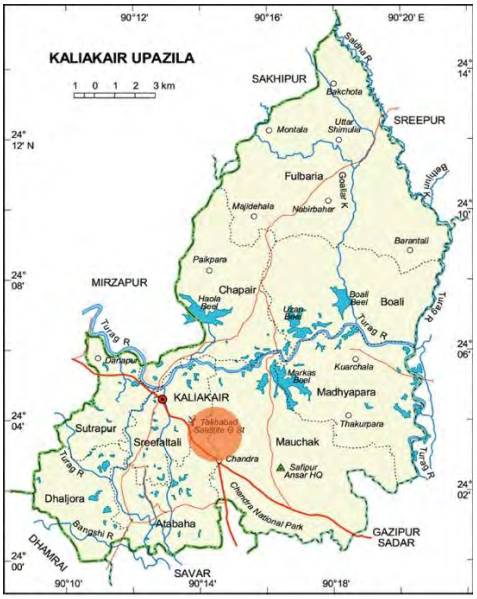

Figure 3.2.b: Kaliakoir upzila map

Source: (Kaliakoir upzila map)

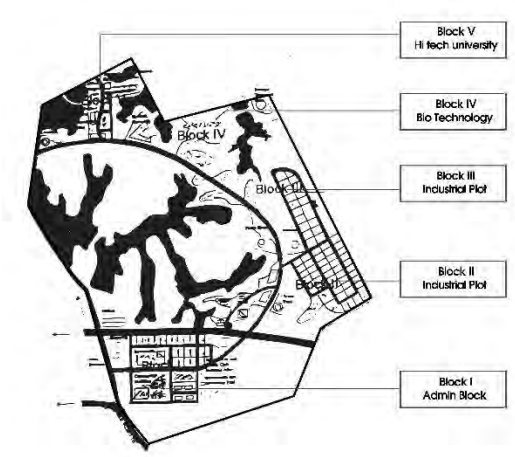

Figure 3.2.c: Kaliakoir HI-Tech park Master plan zoning. Source (Saha, , 2013)

Figure 3.2.d: Location from satellite view

The location of the proposed project site is on the Dhaka-Tangail National Highway, about 40 km north-west of Dhaka city. The major part of the proposed site is located in Goalbathan mouza under Srifaltali Union to the west.

3.3 Geological Condition

Figure 3.3.a: Soil type of Bangladesh, Source: (Saha, , 2013)

Proposed area is situated in non-flood prone area. It's geographical condition mostly built at Pleistocene time period which is underline plio-pleistocene Dupi-tila formation for that reason here create a basin area. It is little bit high land from sea level. Its maximum height is 18m from sea level. At block five maximum height is 13m and minimum height is 3m.

Figure 3.3.b: Contour map

Figure 3.3.c: Topographical map. Source: (google earth pro gold satellite view)

3.4 Site Surroundings

The proposed side adjacent with National highway at west side and Talibabad satellite station at south side which is part of Hi-Tech park authority. At north there is a river known as Banshi River, it's part of Turag River. South side have railway track which is connected with Jamuna Bridge. The nearest rail station is Mouchak rail station which is approximately 13km far east side of site, but government have a proposal to build a rail station within 1 or 2 km from Hi-Tech park.

Figure 3.4.a: River location. Source: (Google earth pro gold satellite view)

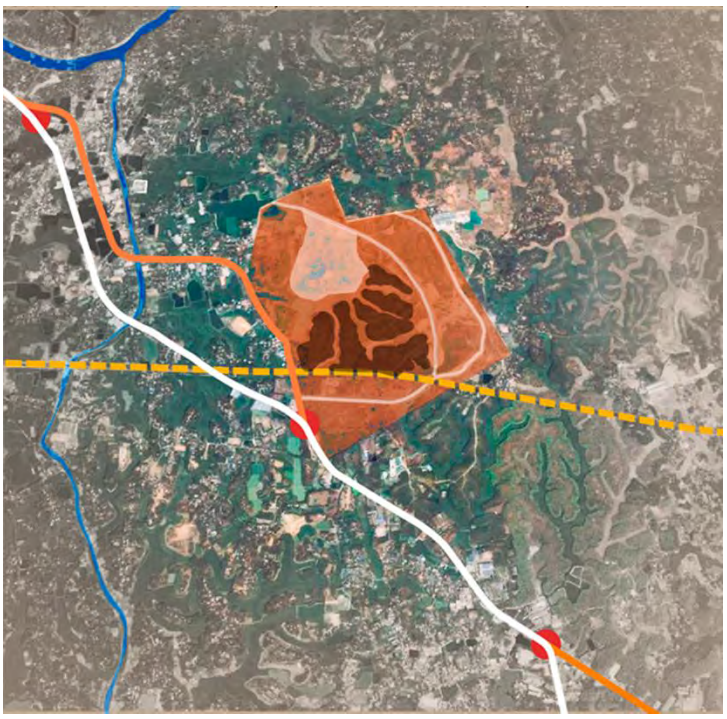

Figure 3.4.b: Mapping of closest infrastructure.

3.5 Noise Analysis

This place is very quit and sound place at day time its maximum sound level is 54dB to 56dB (Saha, , 2013). This survey is done by KHTPA.

3.6 Climatic Consideration: Orientation

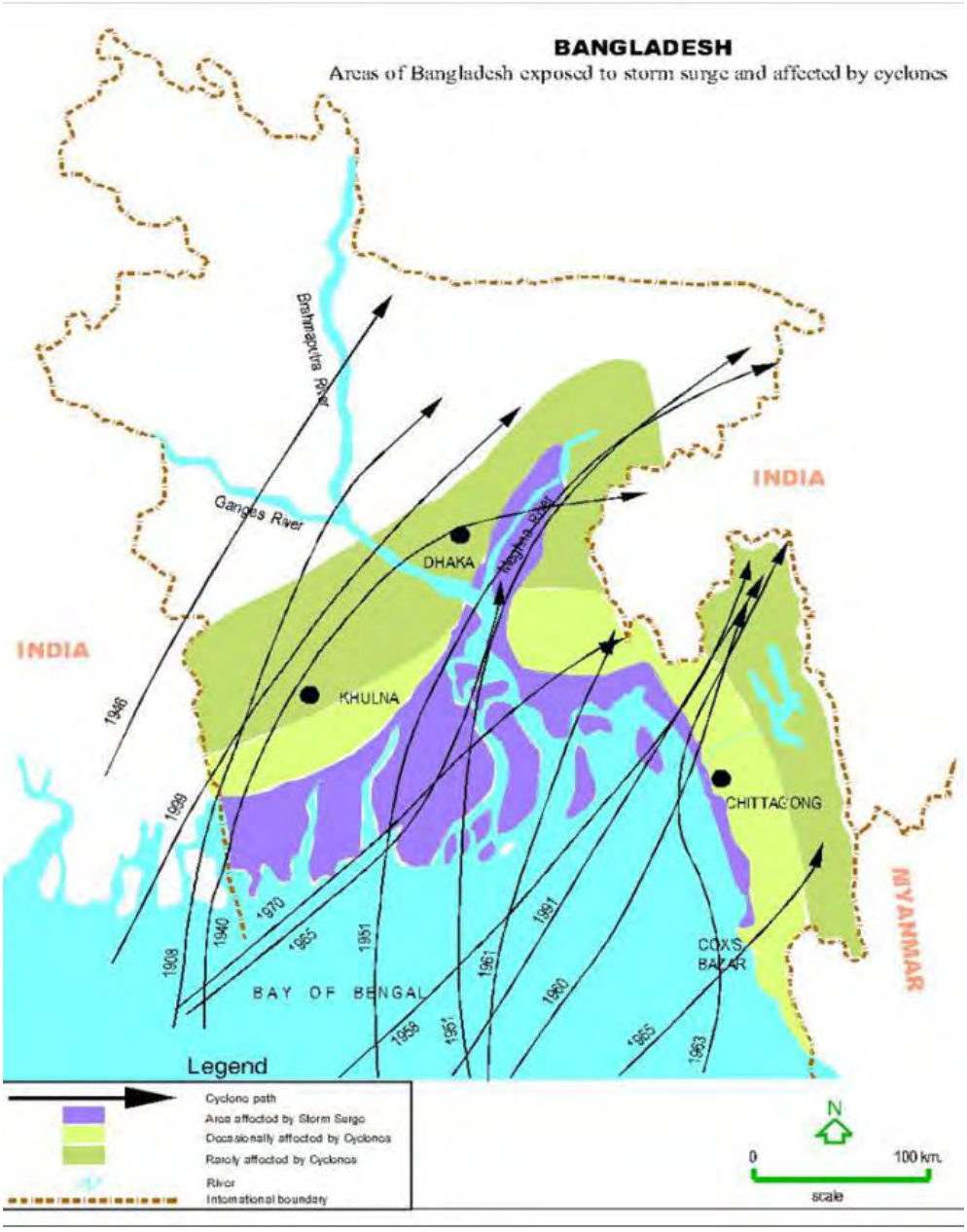

Figure 3.6.a: Alignment of cyclone event. Source: (Saha, , 2013)

Proposed site is in less cyclone area. It is basically a subtropical zone its climatically large variation in summer and winter time period its basin is mostly work as holding surface water in rainy season.

Figure 3.6.b: Satellite view at January. Source: (Google earth pro gold satellite view)

Figure 3.6.c: Satellite view at March. Source: (Google earth pro gold satellite view)

Figure 3.6.d: Satellite view at November. Source: (Google earth pro gold satellite view)

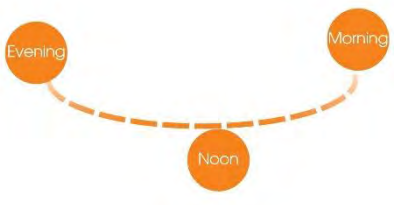

Figure 3.6e: Sun path Diagram.

3.7 SWOT Analysis

Strength

- Not flood prone area
- Pleistocene age land formation.
- Very nearby National High way.
- Internal Hi-tech park semicircular road create a cul de sac at Block V.
- Via and link road connected through from site boundary line.
- Bus stops are very close to site.
- An important rail track adjacent with Hi-Tech Park.
- Talibabad satellite center nearby site.
- Its north south face will get maximum exposure.

Weakness

- It contain a huge ecological diversity which will hamper.
- Security is a big issue here for Hi-Tech Park but for University Campus its different scenario.

Opportunity

- Its undulated topography is a huge opportunity for university campus landscape.
- Its basin area will be a good space for bio technology research work.
- Orientation of this is an also a big opportunity.

Threat

- Ecological inhabitant will phase a huge threat if does deal with very carefully.

3.8 Site Condition

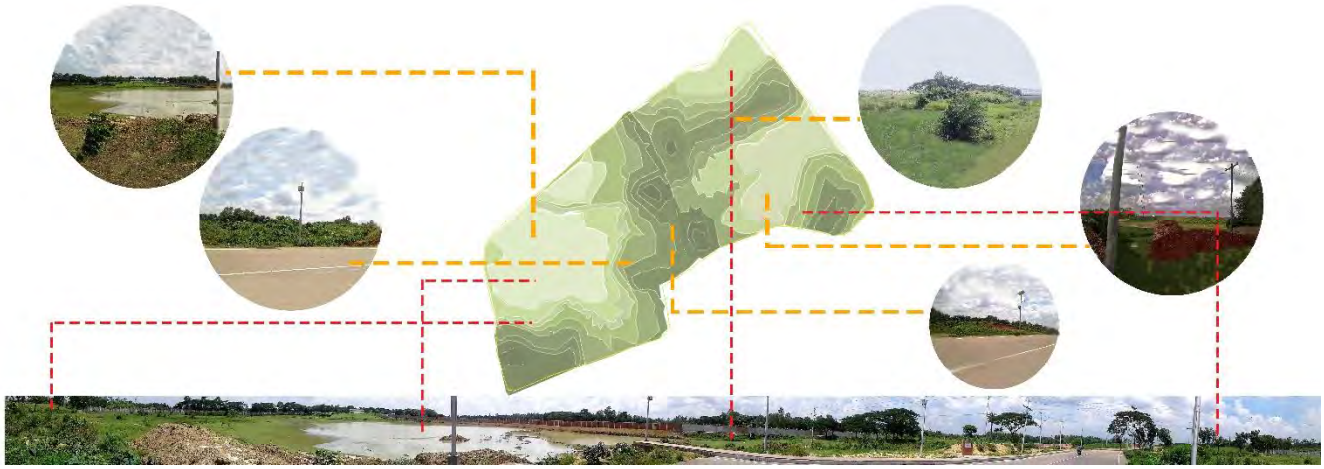

Figure 3.8a: Site present condition.

CHAPTER FOUR

CASE STUDIES

4.1 CHAPTER BRIEF

In this chapter we try to accumulate basic necessary information from known architectural project. We observe those projects merit and demerit. That studied from various books, internet or other sources as secondary case references.

4.2 Jahangirnagar University, Savar

Project Architect: Arch.Muzharul Islam.

Site: Savar, Dhaka

Project Brief: In 1967 he start work on its master plan till 1970 he work on it. It undoubtedly a wonderful master plan with a strong diagonal line geometric composition. This lines are generate a harmony with site. It make relation with a huge waterbody and trees. Islam's sensitivity are reflected on campus master plan. It create a complementary dialog with site nature and build form.

The site arrangement, which looked to hold the common state of the site however much as could reasonably be expected, places regulatory and showing structures in the middle, with understudy quarters situated toward one side and personnel and staff living arrangement at the other. The tilted square theme developed out of the double contemplations of utilizing the building volumes to make spatial corners, and of giving every building the same level of sun introduction and normal ventilation. The arrangement additionally recognized that the grounds would be assembled progressively. A vast piece of Islam's unique arrangement stays hidden.

The arrangements for both Jahangirnagar University and Joypurhat Housing mirror Islam's push to propose an option city, to move far from the usual morphology of city and nation. Islam trusts the qualification between the two mirrors a social deviation that ought not to be spread. In the meantime he recommends that conventional climatic-

ecological reactions ought to be joined with the new study of innovation. Although both the Jahangirnagar and Joypurhat arranges consolidate a specific feeling of collectivity and "urban" request through the development of shared spatial fenced in areas, ceaseless exteriors, and some kind of road, they additionally react to the quintessence of staying in the hot-damp delta; the structures are displayed in the geometric arrangement to be containers for "light, green and air". (Ashraf, 1999).

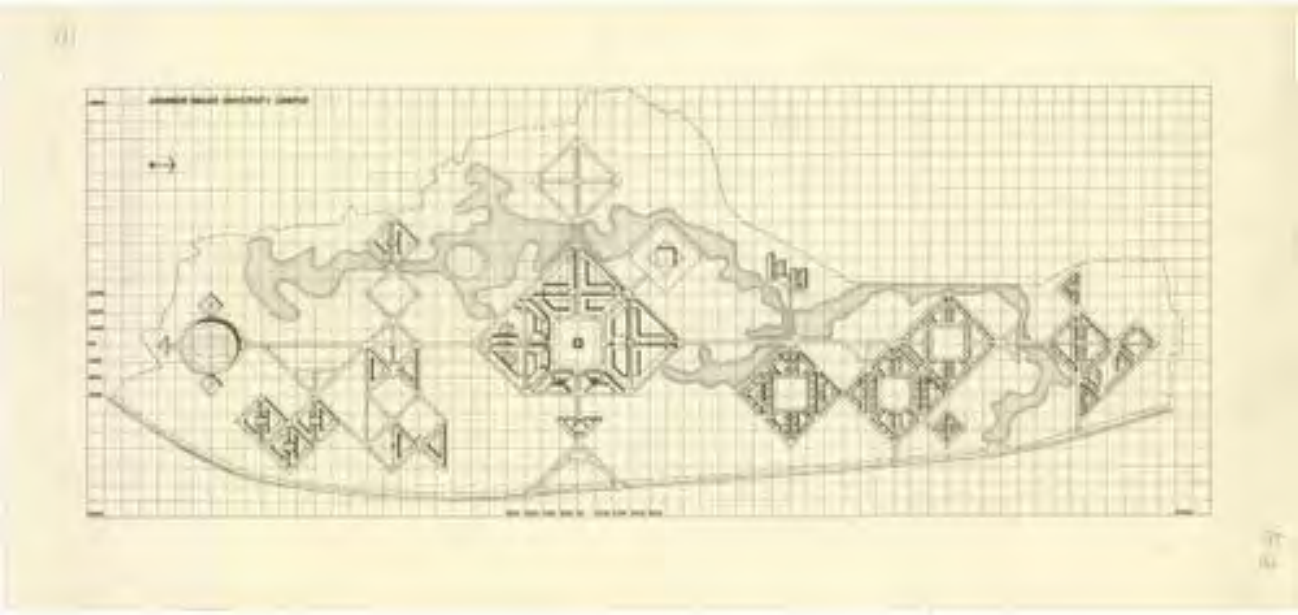

Figure 4.2.a: Master plan of Jahangirnagar University. Source :(http://www.muzharulislam.com/projects/jahangir_nagar_university/drawings/muzharul_islam_jahangir_nagar_university_campus.jpg)

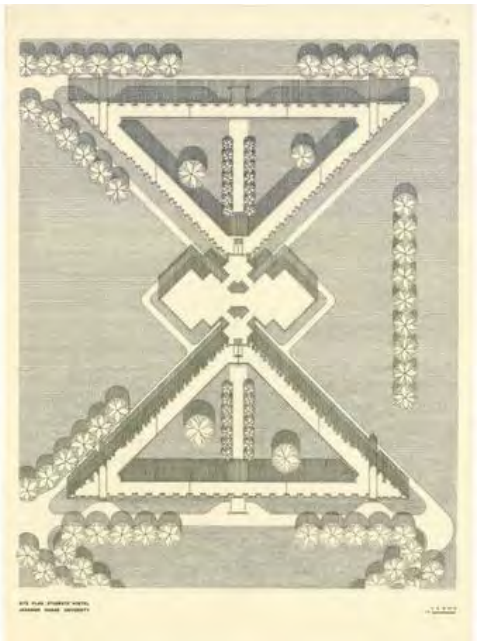

Figure 4.2.c: Student hostel of Jahangirnagar University. Source :(http://www.muzharulislam.com/projects/jahangir_nagar_university/drawings/muzharul_islam_jahangir_nagar_university_student_hostel_site_plan.jpg)

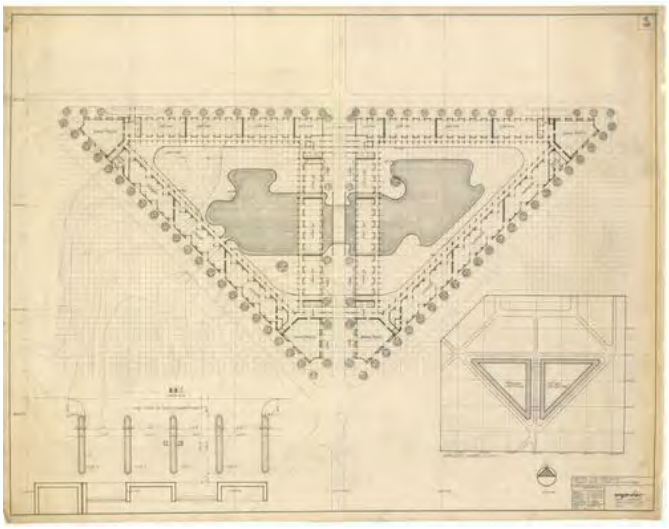

Figure 4.2.b: Science building of Jahangirnagar University. Source :(http://www.muzharulislam.com/projects/jahangir_nagar_university/drawings/muzharul_islam_jahangir_nagar_university_science_building.jpg)

Figure 4.2.d: Science building top view of Jahangirnagar University. Source :(http://www.daily-sun.com/assets/archive/images/jahangirnagar_university_dhaka aerial_birdseye_view.jpg)

Analysis

- Built strong geometry composition with nature.
- Create a harmony with nature.

4.3 IUT (OIC), Gazipur

Project Architect: Arch. Pamir Mehmet

Site: Tongi, Gazipur.

Project Brief: This project is situated in front of Dhaka Mymensingh High way. It is basically an engineering university with provided full campus facilities. It is with very

compact master plan done by a Turkish architect Arch. Pamir Mehmet. Mehmet try to center all function within plaza. In front of mosque, Auditorium and dining there is common plaza space which is so livelihood for their functional requirement. Student come at this place and share their idea with other scholars in this place which is very important for a student who are taking higher education.

Figure 4.3.a: IUT (OIC) University from satellite view. Source: (Google Earth Pro Gold)

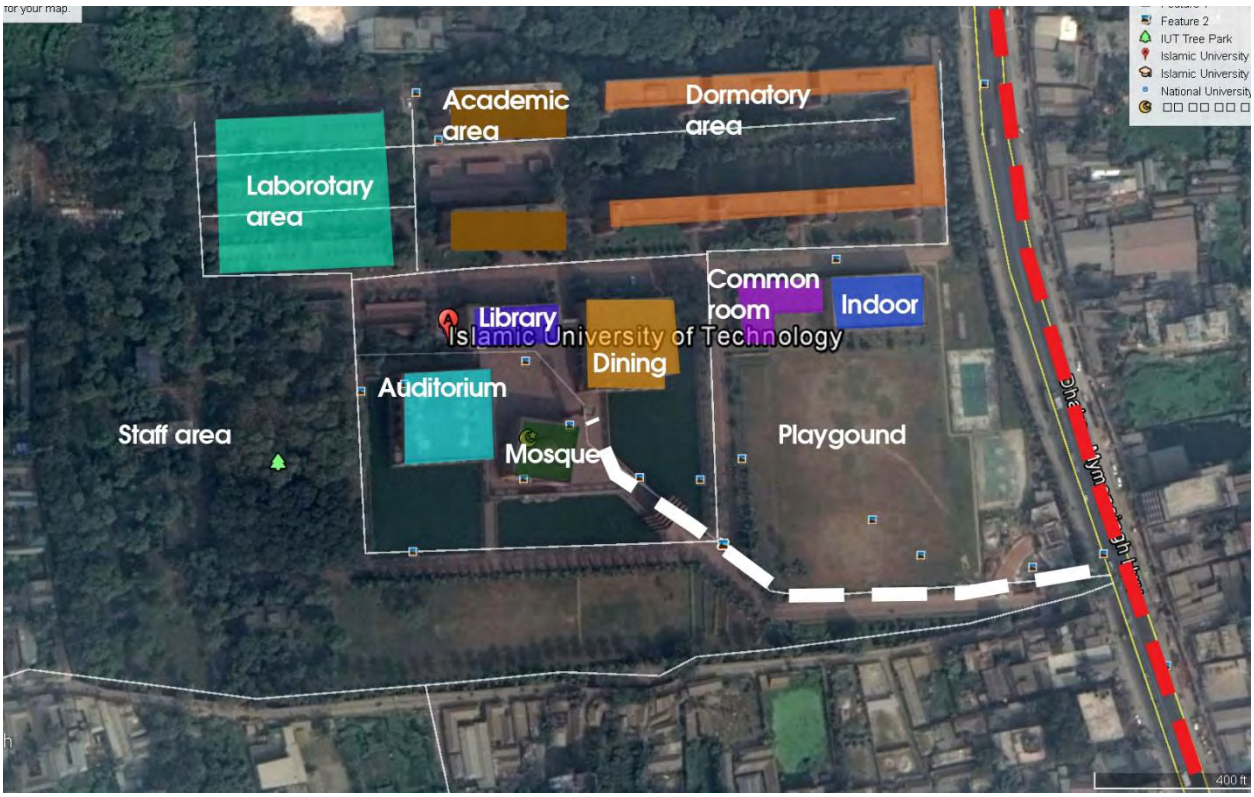

Figure 4.3.b: IUT (OIC) University from satellite view functional illustration. Source: (Google Earth Pro Gold)

Figure 4.3.c: IUT (OIC) University from satellite view zoning illustration. Source: (Google Earth Pro Gold)

Figure 4.3.d: IUT (OIC) University central plaza space.

Analysis

- Central gathering space which help to share knowladge with other scholars.

4.4 IIM University, Ahmedabad

Project Architect: Arch. Louis Kahn

Site: Ahmedabad, India.

Project Brief: Kahn start work on this project from 1962. Its 60 acres land area. He design this institute with his philosophy. For Kahn, the design of the institute was more than just efficient spatial planning of the classrooms; he began to question the design of the educational infrastructure where the classroom was just the first phase of learning for the students. Its hallway and plaza become a new center of learning and classroom turn into a formal sitting area for the beginning of learning. He used local materials to reflect Indian culture in Façade.

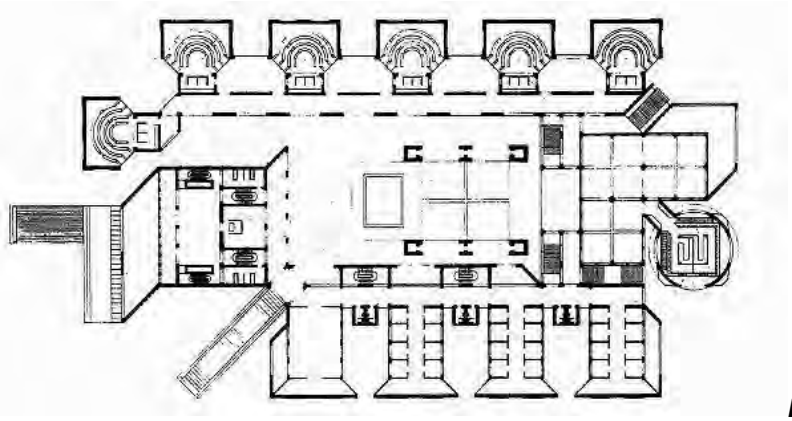

Figure 4.4.a: IIM University plan.

Source:

(http://images.adsttc.com/media/images/5037/e630/28ba/0d59/9b00/033a/large_jpg/stringio.jpg?1414231171)

Figure 4.4.b: IIM university campus. Source: (http://images.adsttc.com/media/images/5037/e64a/28ba/0d59/9b00/033e/large_jpg/stringio.jpg?1414231168)

Figure 4.4.c: IIM University campus. Source: (http://images.adsttc.com/media/images/5037/e647/28ba/0d59/9b00/033d/large_jpg/stringio.jpg?1414231151)

Figure 4.4.d: IIM University campus façade detail. Source: (http://images.adsttc.com/media/images/5037/e62c/28ba/0d59/9b00/0339/large_jpg/stringio.jpg?1414231166)

Analysis

- Classroom is for starting point of knowledge gathering
- But a common space create a better and educated Human.

CHAPTER FIVE

PROGRAM DEVLOPMENT

5.1 CHAPTER BRIEF

This chapter we mainly try to calculate our program detail with given clue and requirement from client. By this detail we will be able to find out our total built area.

5.2 Program Requirements from Client

The proposed Hi-Tech University of Engineering and Technology should have programs that can meet the demand of Hi-Tech manpower for the global IT Industry. It is, therefore, thought that the University should have started with the following faculties. This decision is made by BCC.

i**. Computer Science (150)**

ii. Computer Engineering (150)

iii. Communications Engineering (50)

iv. Biotechnology (50)

v. Mechatronics (50)

The figures in the bracket shows the probable intakes in the program.

So total number of student 450.

Per year they plan to take only one intake which is spring session.

Engineering is basically complete within 4 year so it means almost 1800 student per year. So all the campus facilities will be design base on 1800-2000 students accommodation.

There will be teacher student ratio will be within 1:15. (Bangladesh computer council, 2002)

5.3 Broad program

BLOCK-V (Hi-Tech University of Engineering and Technology Block) will be accommodate with

- Academic Building
- Administrative Building
- Student dormitory
- Cafeteria
- Research facilities
- Eco research building
- Security office

(Bangladesh computer council, 2002)

5.4 Detailed program

For those faculties need some advance level laboratory facilities there is given detail laboratory for per faculties.

Computer science, Computer Engineering and Communications Engineering Programs

- Electronics Lab.
- Network Lab.
- Digital Techniques Lab.

- VLSI Design Lab.
- Microprocessor and Interfacing Lab.
- Multimedia Lab.
- General Computing Lab for Students
- Faculty Computing Lab.
- Software Engineering Lab.
- Communications Engineering Lab.

Mechantronics Program

- CAD/CAM Lab.
- Robotics Lab.
- Material Science Lab.
- Solid Mechanics Lab.
- Waves and Optics Lab.
- Thermofluid Lab.
- Instrumentation and Measurement Lab.
- Control Engineering Lab.
- Simulation Lab.
- Reverse Engineering Lab

Environmental Science and Technology Program

- Bio-chemical Analysis Lab.
- Model Lab.
- Environmental Management Information Lab.

Biotechnology Program

- Microbiology and Fermentation Lab.
- Genetic Engineering Lab.
- Protein Engineering Lab.
- Biochemistry Lab.
- Plant Tissue Culture Lab.
- Animal Tissue Culture Lab.

(Bangladesh computer council, 2002)

According to Bangladesh Government there have some rule for private university recommendation Hi-Tech University of Engineering and Technology. Will try to follow those rules for get their permission.

University admin panel will monitor by

- Board of trusty
- Syndicate
- Academic council
- Department
- Institute
- Disciplinary comity
- Account

Syndicate will formed by

- Vice chancellor
- Pro vice chancellor

- Treasurer
- 1 from academic councilor
- 1 from department head
- 1 from department dean
- 1 selected person from board of trusty
- 1 selected person from UGC.
- Registrar will be the secretory of this syndicate. (Gadget, Bangladesh, 2010)

5.5 Units Detail

Estimated class size = 10 students per teacher x (40 hours of instruction time per student/10 hours of teaching per teacher) = 40 students (Max) (per class)

Class room Size 900 Sft per 40 students

Discussion room Size 500 Sft per 20 students (1 nos per 40 student)

Seminar room Size 400 Sft per 20 students (1 nos per 40 student)

Group work room Size 900 Sft per 40 students (1 nos per 40 student)

Total Number for classroom 37 (approximately). (OECD, 2015)

Space category	Room	Capacity	No. of rooms	Area (sqft)

Reception & Front admin

Reception	Front desk & reception	2	1	156
	Waiting area	40	1	1000
	Peons & cleaners		1	156
	Printers & photocopier		1	156
Admissions office	Head of admissions	1	1	156
	Deputy	1	1	100
	Manager	1	1	100
	Office	4	1	300
	Waiting area	15	1	200
	Admissions storage		1	810
Total				3134

Top Administration

General	Executive meeting room	15	1	800
	Executive dining space	15	1	800
	Peons & cleaners	2	1	156
Board suite	President's room	1	1	300
	VP's room	1	1	300
	Board suite admin	2	1	300
	Offices for board members	1	5	1500
	Board suite waiting lobby	1	1	300
VC Suite	Vice chancellor	1	1	300
	Pro vice chancellor	1	1	300
	Treasurer	1	1	300
	Admin office	2	1	300
	Lobby	1	1	300
Total				5956

Student Administration

General	Peon & cleaners	1	1	156
	Printer & photocopier	1	1	156
Registrar's office	Registrar	1	1	200
	Deputy registrar	1	1	156
	Manager	8	8	2496
	Officers	2	2	1620
	Records storage	1	1	400

Exam controller	Head	1	1	156
	Officers	2	1	156
	Exam records room		1	400
Finance & accounts	Finance director	1	1	200
	Deputy	1	1	156
	Accounts office	12	1	810
	Accounts storage		1	400
Total				7462

General Administration

General admin	Head of admin	1	1	200
	Deputy	3	3	468
	Manager	6	6	600
	Asset manager	2	2	312
	Sr. Officers	1	1	156
	Officers	3	3	468
	Asst. Officers	3	3	468
	Admin storage	1	1	400
	Peons & cleaners	2	1	156
	Printer and photocopier	1	1	156
IT Division	Head of IT	1	1	156
	IT Office	12	1	810
	Repair room	3	1	156
	Help desk	2	1	156
	Server room		1	300
	IT storage		1	400
Academic affairs	Head of academics affairs	1	1	156
	Academics affairs office	4	1	500
Marketing	Head of marketing	1	1	156
	Office	4	1	500

Communications	Head of communication	1	1	156
	Office	8	1	500
	Designing lab	2	1	156
Total				6830

Student's activities centre

General	Waiting area	20	1	400
	Peons & cleaners	2	1	156
	Printer & photocopier	1	1	156
Career services	Head of career services	1	1	200
	Deputy	1	1	156
	CS centre	6	2	624
Students affairs	Head of students affairs	1	1	200
	Deputy	1	1	156
	Students affairs office	6	2	624
	Counselling room	1	2	200
Medical office	2 Counselling rooms & Pharmacy	4	3	468
Total				3340

General use facilities

Auditorium	1500	1	12000
Auditorium green room	25	2	1620
Multipurpose room	200	1	200
Art gallery	45	1	600
Prayer space	15	2	200
Aju space	5	2	200
Security room	4	4	400
Club rehearsal space	45	1	810
Indoor sports room	10	1	2000
Gym	10	2	2000
Study room	45	3	3000
Student lounge	30	4	4000
Cafe	300	1	3600
Faculty and admin lounge	50	2	1200
Stationary/ bookstore	2	1	810
Photocopy centre	2	1	400
Total			33040

Storage

Accounts	1	1	500
Records Room	1	1	810
Sports	1	1	200
General	1	1	2000
Cleaning Store and Seating	1	1	600
Security Store	1	1	200
Total			4310

Research centres

Research building				65000
Eco Research building				465000
Total				**530000**

Student Dormitory

Research building				150000
Total				**150000**

Total area: 1,788,962 sqft

CHAPTER SIX

DESIGN DEVLOPMENT

6.1 CHAPTER BRIEF

This chapter we mainly try to explain about design implementation. How we start design process and how we get master plan.

6.2. Concept Diagram.

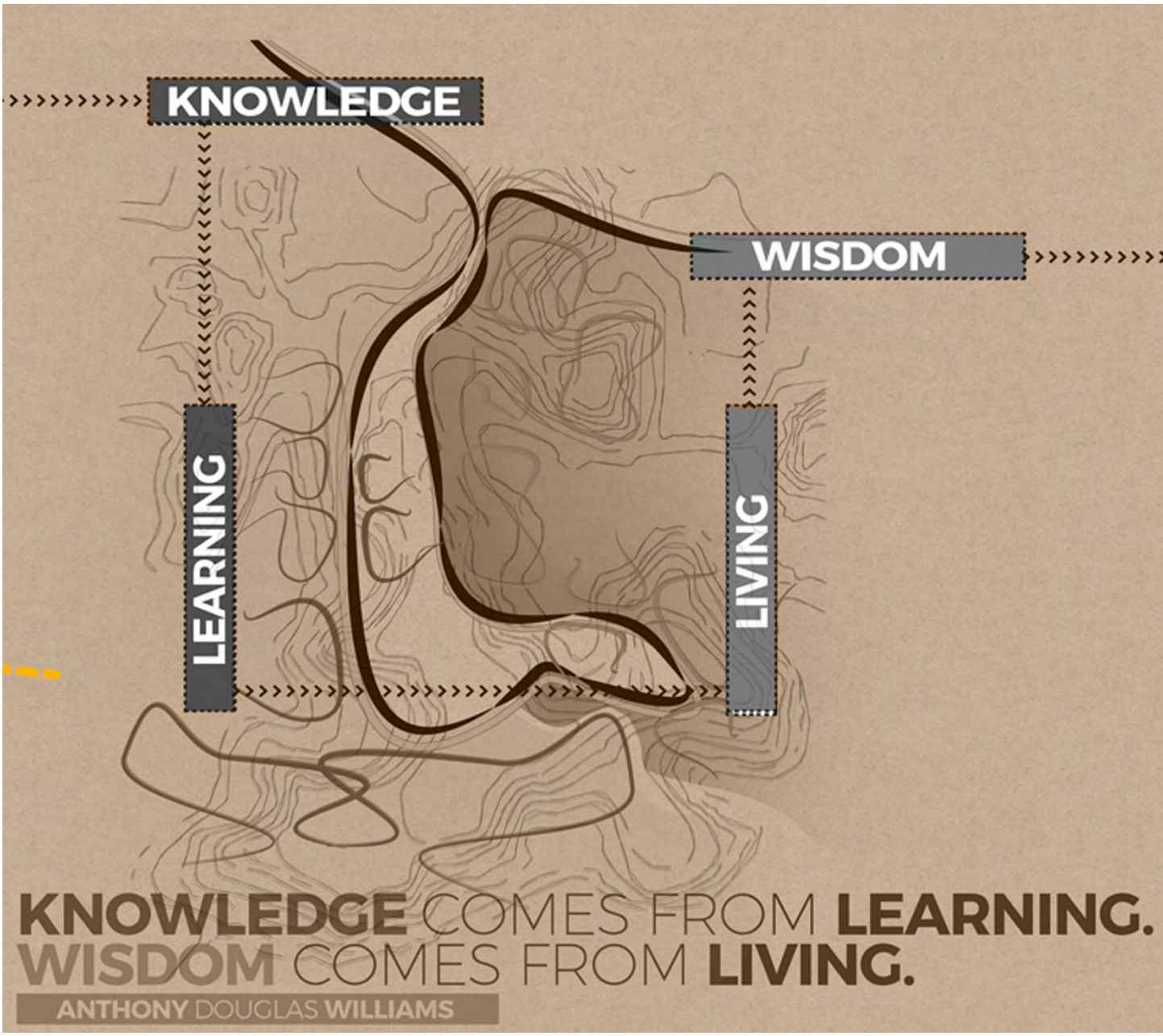

Figure 6.1.a: Design main concept.

6.3. Design consideration Diagram.

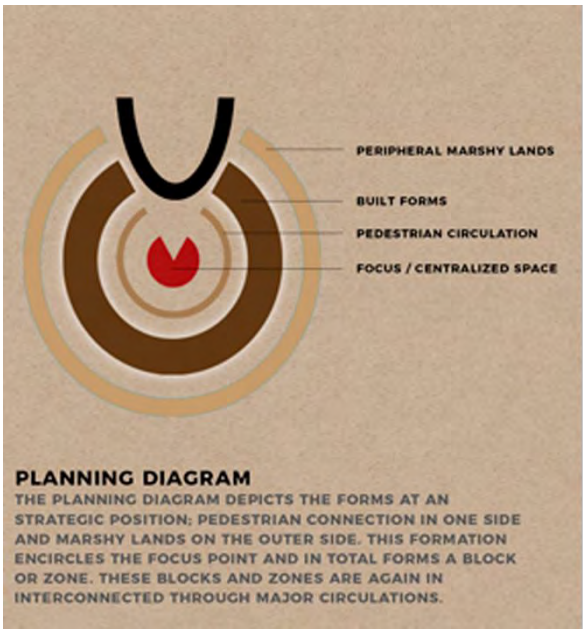

Figure 6.3a: planning diagram.

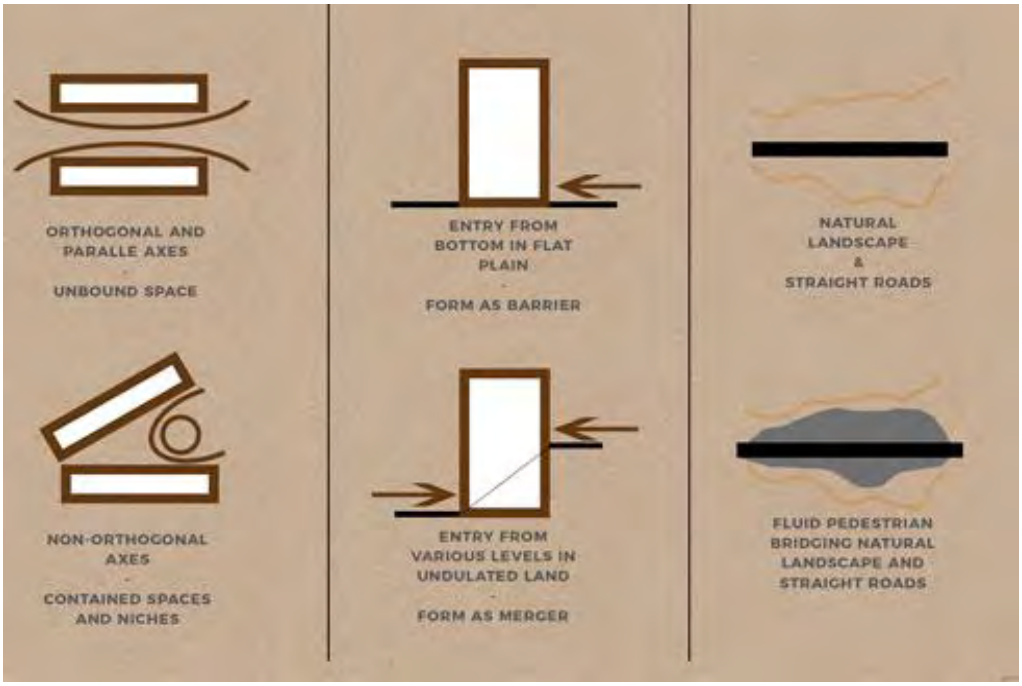

Figure 6.4.: Master plan.

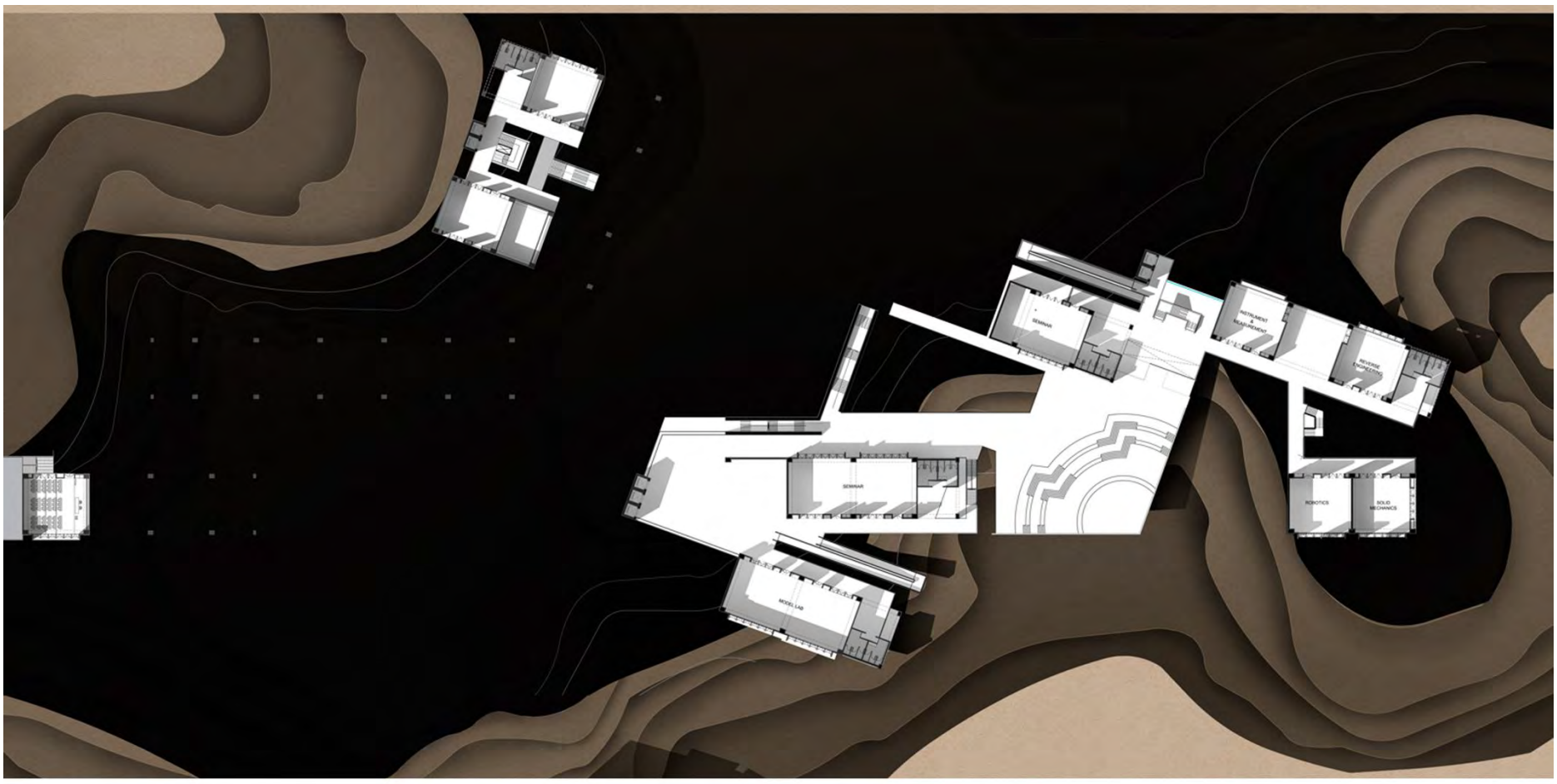

Figure 6.4.a: Academic floor plan @-12'.

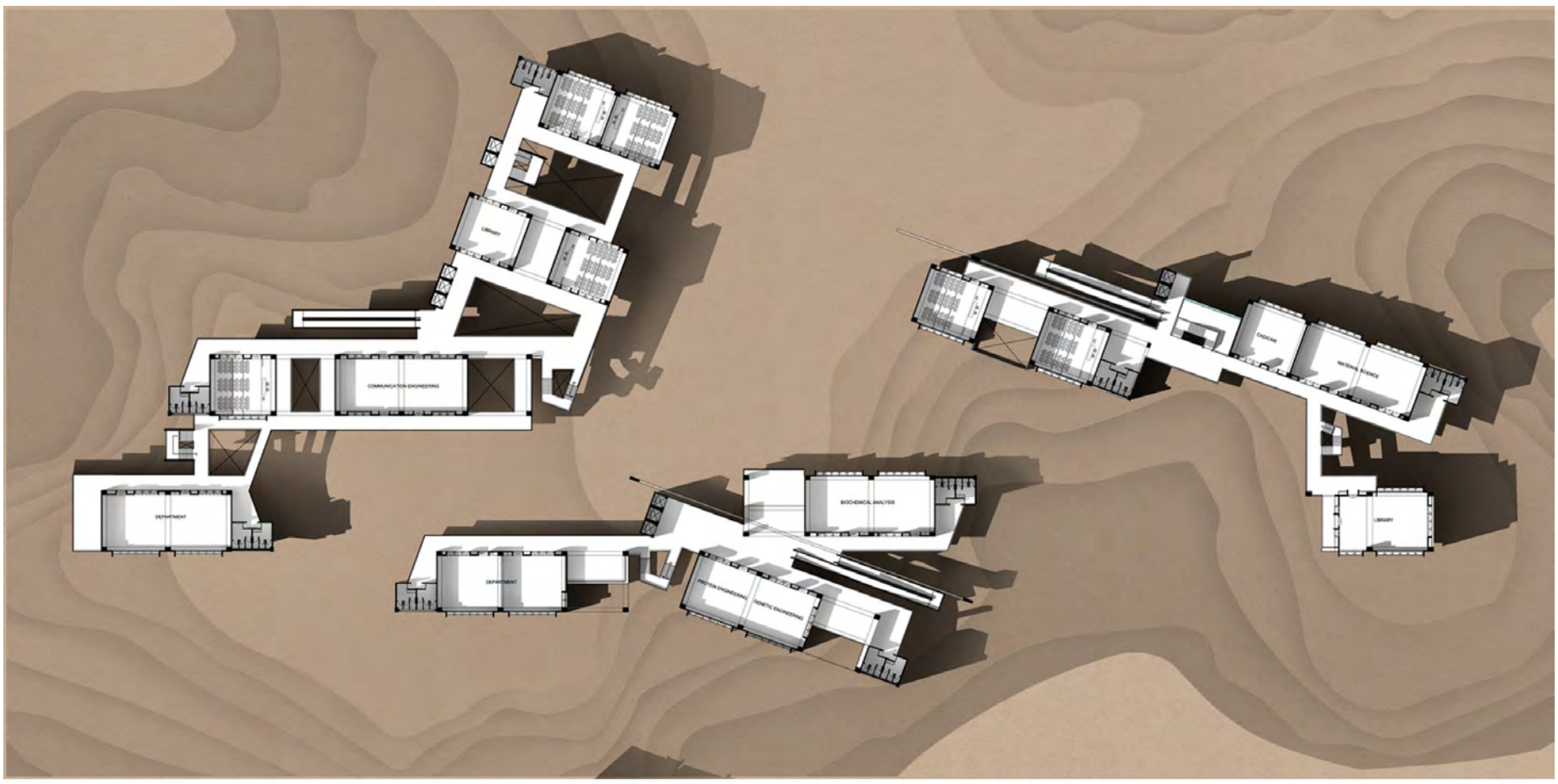

Figure 6.4.b: Academic floor plan @24'.

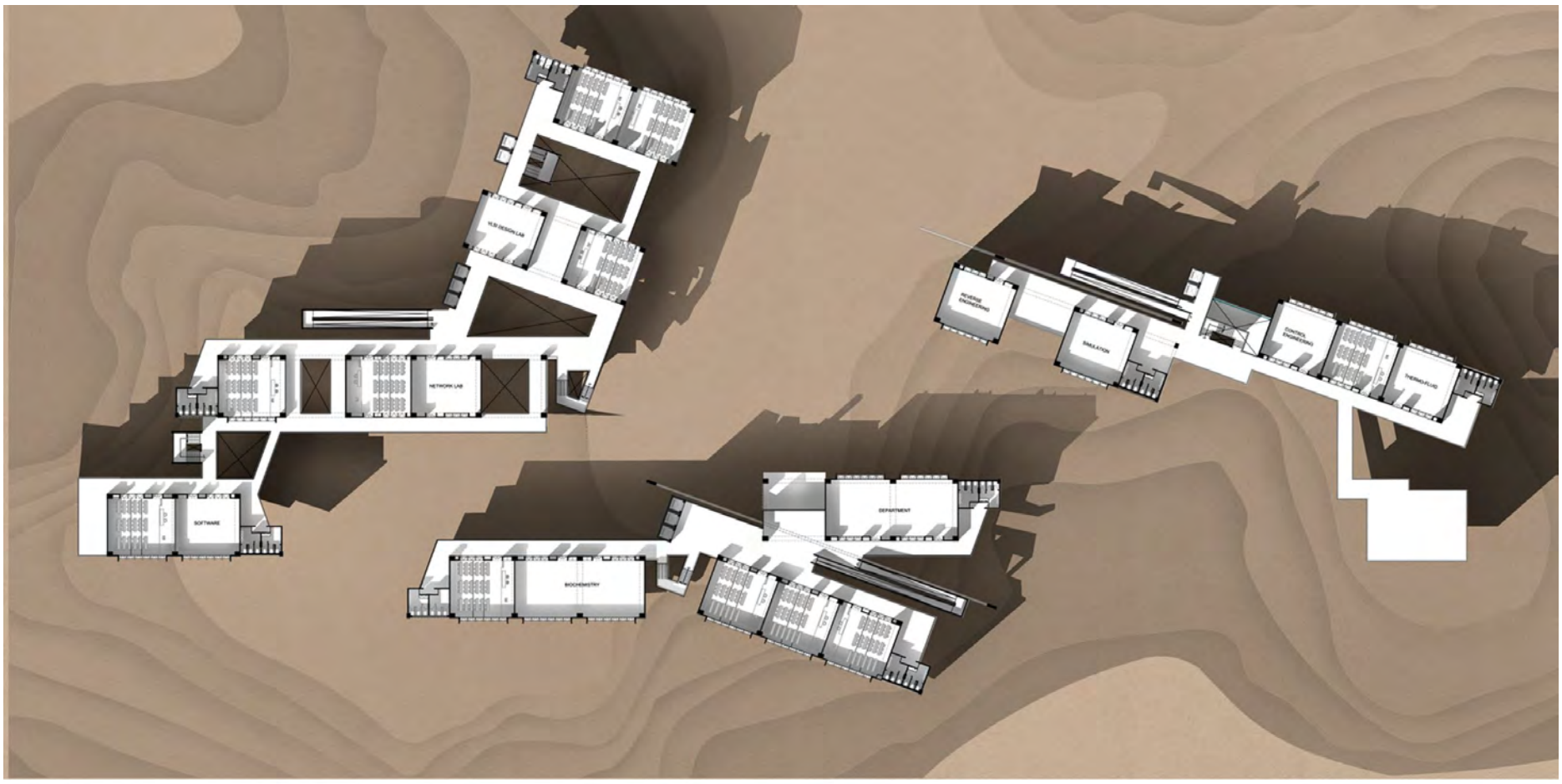

Figure 6.4.c: Academic floor plan @36’.

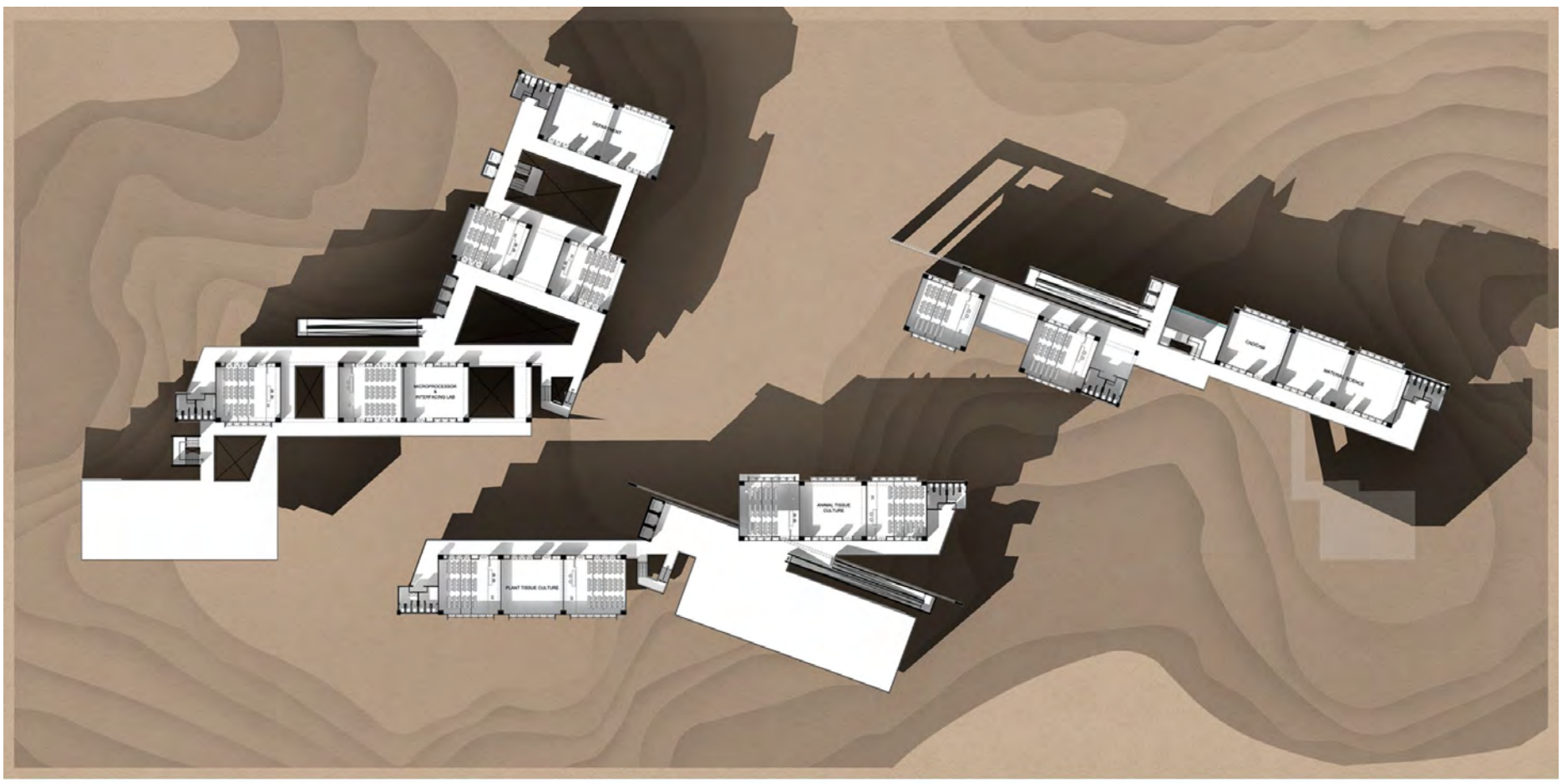

Figure 6.4.d: Academic floor plan @48’.

Figure 6.5: South Elevation.

Fiaure 6.6:Section A-A' .

Figure 6.7: Render image.


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SCALE: 1/32" = 1'-0"

Figure 6.8: Model image.

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