

# **Architectural Studio VII (Urban Design)**

## **Project Brief**

### **Redevelopment of the Duhok Polytechnic University Campus**

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**Due date: 20<sup>th</sup> July 2020**

#### **Introduction to the DPU**

The Duhok Polytechnic University (informally DPU) is a collegiate research university located in Kurdistan Region-Iraq. Kurdistan Region is rapidly evolving and has witnessed a continual shift in educational needs for its society. Both higher education enrollments and the number of institutions have expanded dramatically during the last decade. As a public multi-campus university, DPU has eight technical institutes and four technical colleges in seven districts within Duhok Governorate, each of which has a unique community with local economic, social, cultural, and environmental development needs. Duhok Polytechnic University, established in 2012, is one of the three polytechnic universities in Kurdistan under the auspices of the (KRG) Ministry of Higher Education and Scientific Research. DPU was originally descended from the oldest institute in Duhok Governorate in 1988, with 19558 graduates since then. Students enrolled in DPU are selected based on their scores at high school. Classes begin in late September and last until the end of June. DPU offers a wide range of curricula leading to Diplomas (Associate Degrees) and Bachelor of Science Degrees. Course syllabi are developed under the oversight of the Quality Assurance. New programs are put into place when the staff, space, facilities, and equipment have been procured. Programs are designed to meet government strategy and market needs. DPU is currently developing a strategic plan in response to the national authority of assessment and international academic accreditation. Therefore, it has a commitment to academic improvement, and establishing relationships with international universities through MOU's, some of them have been signed already and effectively functional.

Please visit the DPU web site for more information about the university:

<https://www.dpu.edu.krd/page/en/226/>

#### **Importance of the Master plan**

As well as being the face of a university and the base for education and research activities, a university campus is a forum for learning for students, and a place that holds fond memories of their alma mater for its alumni. Moreover, a campus needs to be attractive to those who are thinking of studying there in the future. Most of the best universities in the countries of the West cannot be compared exactly, because of system-related differences in each country and the various situations surrounding the universities, but they have attractive campuses with abundant distinctive characteristics. Furthermore, in recent years, qualitative improvements on campuses have been pursued at universities in Kurdistan and Iraq. In contrast, Duhok Polytechnic University campuses have not been well-coordinated as campuses even though engineering and construction directorate at the DPU has tried its best to provide a good learning environment for the DPU students in terms of constructing classroom, cafeterias...etc for the DPU campuses. Moreover, problems relating to

safety arising from the progressive dilapidation of the facilities and problems of functionality have become apparent. A campus master plan, which is a basic plan for the campus environment as a whole, is important to pursue the development and utilization of campuses that form a base for education and research, through the orderly development of a well-coordinated campus. The master plan has a close relationship with the academic plan and the management strategy.

## Facts about the Campus

- Total area of the campus: 45372 M2
- Educational Building: Technical college of Engineering , Duhok Technical Institute, and Labs and workshops
- Administrative Building : Presidency Building , Research Center, Deanship of College of Technical institute of Duhok , Deanship of Technical College of Engineering
- Facilities : Accommodation, Library and cafeteria, Car parking, And green areas

## Problem Statement:

Recently, the number of students has grown in the Duhok Polytechnic University (DPU) in Iraq which the campus needs expansions to accept a larger number of students in the near future. Moreover, some buildings on the campus are old and in a bad condition in which maintenance works are no longer able to keep those buildings livable. Apparently, there have been some extensions and additions of new buildings to the site. However, all those works have emerged as urgent works with no methodological approaches to the urban design in terms of critical and scientific analysis of the site, future expansions, walkway design, pedestrians, etc. as well as no consideration to the up-to-date standards of the university buildings' design.

You are asked to suggest a new proposal for the development of the whole campus on the urban-scale that would work as a master plan for the university on its plan for demolishing some parts of the campus and rebuild new buildings on the place. The challenge is how the new building can receive a larger number of students in the same plot area with fewer environmental impacts as well as how to provide a more connective, friendly, and sustainable campus. For those reasons, vertical extensions could be one of the solutions to increase the capacity of buildings, decrease energy consumption, and provided more green areas and improve air quality. The concept should emphasize on providing a landmark, better outdoor spaces, and gathering points.

The project lacks many essential facilities of educational campuses. Students, therefore are required to have a deep analysis of international examples and compare them with the existing campus to determine the main existing strength and weakness of the campus. New functions and facilities should be suggested per the requirements of the campus (bigger car parking to include more cars, sports center, student's center, cafeterias and restaurants, accommodation, lecture halls and theaters, labs and offices, conference hall, green and open spaces).



Figure 1. Aerial view of the DPU campus.

## Design Requirements

- Determination of the current main problems of the campus (strength and weakness of the campus). This should reflect a fully understanding of how the campus is functioning currently in terms of routes, green area percentage, car parking area, existing buildings' function and articulations, number of students on the campus, and understanding the expected number of students in future).
- Determination of main facilities required for the campus.
- Suggest demolition of some buildings on the campus that are old or help the new design to work more properly.
- Design of the new building masses for the demolished function and new suggested facilities inside the camp. (the new masses should reflect fully understanding the size and areas required for the function inside) including 50% extra area for the future expansion.
- Design of the open spaces, gathering point, green spaces, and pedestrian routes required for the sustainable university campus. (The design should reflect the relation between masses and open spaces inside the campus as well as with surrounding buildings around the camp).
- Determination of the main campus entrances and suggested building mass entrance. (The design should reflect the fully understating the surrounding routes to the campus, required car parking). (this should include parking lots as well)
- The proposal should suggest the design of building facades, with a unique and unified architectural style (this should include suggested materials of window styles, façade details ...etc
- Sustainability inclusion ( the campus should reflect maximum means of suitable campus design in terms, of renewable energy opportunities, water harvesting, maximum greenery, safe routes, building orientation and articulation, social improvement).

## Design Phases:

**Stage one (Data Collection):** at this stage, students will work as a group on collecting the required data for the urban design. Data like (the existing site plan, topography configuration, main buildings' drawings, and their function, area of different types of functions, number of floors, number of students and employees, pictures of the site and buildings, and 3d Model of the site, etc.). As well as students have to collect data on similar examples from regional countries, also other countries (international).

**Stage Two (data analysis):** the work in this stage is more intensive and essential for the design, as the main solutions of the design have to be formulated based on the analysis. At this level, students will work on analyzing the collected data to understand what are the weaknesses and strengths of the site. What are the required functions and what should be done on the next phase? Students should determine the Percentage of Green to Plot Area, Floor Area Ratio (FAR), and Maximum Ground Covering (MGC), the Parking area, routes to the site, and entrances which are necessary to for analyzing the site.

**Stage three (design suggestion):** this is the design stage in which students should work individually, per the analyze student should suggest a new proposal of the site. At this stage, students should decide about buildings that need to be demolished and replaced with new buildings

or converted to any other function, the buildings that would extend or kept. Additionally, they should suggest new functions/facilities that would be added to the site. The proposal would deal with the building masses on the site and suggest zoning for new functions.

**Stage four:** at this stage, students should work on detailing the masses with suggested architectural style. Façade should have more details to picture the proposed building on the site. Students should work on the details of the landscape, open spaces, greenery, and sustainable strategies..etc.

## Deliverables

- Base case analysis: it should include analytic maps showing (existing routes to the site with parking and building entrances, green area, existing building area and functions, suggested building that should be demolished).
- Drawing of the suggested site plan showing existing building with proposed one, design of the open spaces and green area with pedestrians walk ways, car parking..etc.)
- 3D of the proposed site with the physical existing surroundings ( 2-3 aerial views, 1-2 for details of the buildings, 2-3 for green and open spaces and land marks on the site)
- Sustainable strategies inclusion (details drawing and figures showing the sustainable strategies used for the project with their description).
- Analytic maps for the improved design.
- Initial sketches and drawings showing how the design progressed.

**FACULTY & DEPARTMENT . . . . .**

**DESIGN FACULTY:**



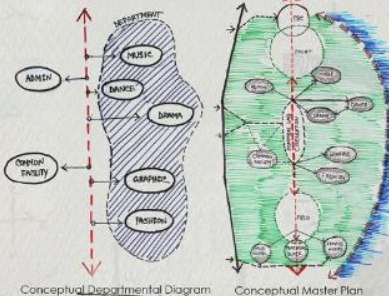
**PERFORMING ART FACULTY:**



**CONCEPT GENERATION . . . . .**

**"UNIFY THE DIVERSITY OF CREATIVITY"**

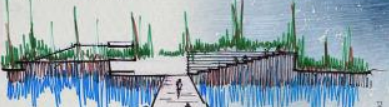
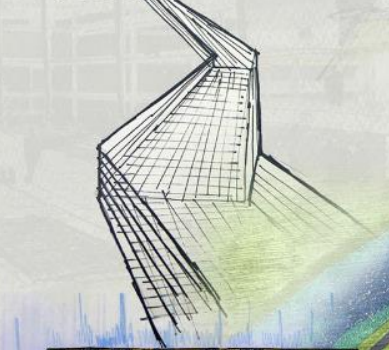
(here different types of department & all department are related by creative field with there individual identity . here i want to make a bridge inter all departments' diversity by major spine.)



Conceptual Departmental Diagram

Conceptual Master Plan

**CONCEPTUAL SKETCH . . . . .**



**DESIGN MOTIVATION . . . . .**

a creative institute is not a institute for study, it's a place where multi-disciplinary activity always held & students are grooming themselves by different activities.

Exchanging ideas and thoughts among students and artists

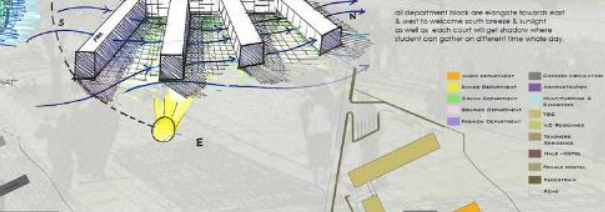
Learning place for students



Cultural hub

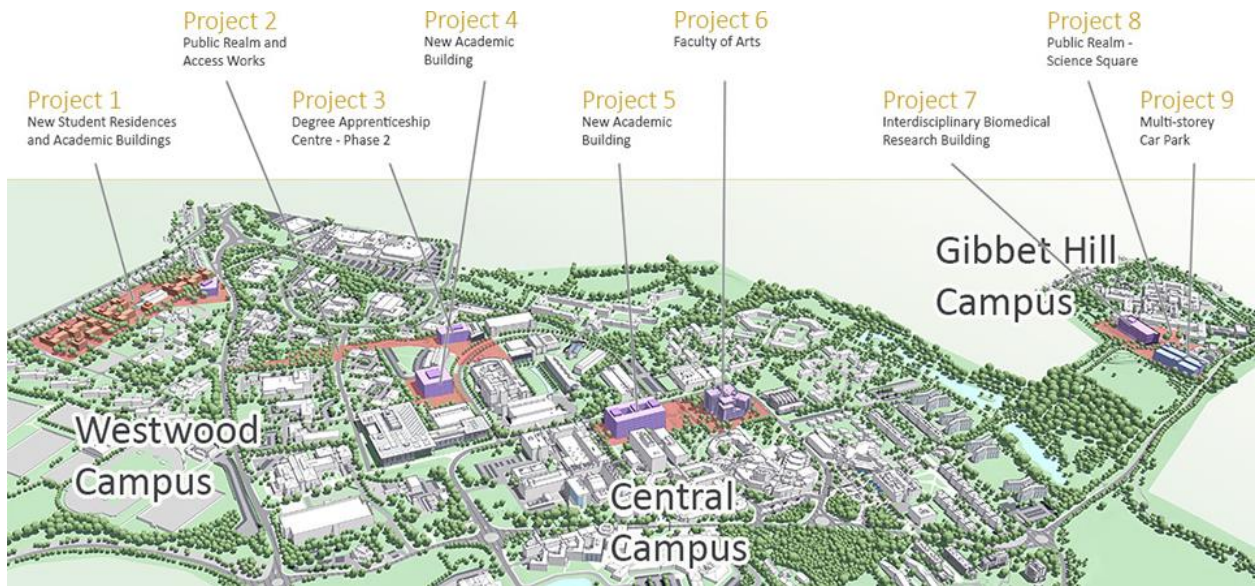
Gathering spot for people of every profession

**MASTER PLAN FORM GENERATION . . . . .**



all department block are arranged towards east & west to welcome south breeze & sunlight as well as each court will get shadow where student can gather on different time of the day.

- Color Department
- Dance Department
- Music Department
- Graphic Department
- Architecture & Interiors
- IT & Software
- Library
- Faculty Offices
- Student Center
- Administration
- Green





Better Learning Environment with Indoor and Outdoor setting areas



Workshop Halls

Lecture Theaters

Lecture Halls





Computer Lab



Laboratories



Seminar Halls