

## Connection of architectural education with the technological world in Northern Cyprus

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### Abstract

Due to the developing economic and technological opportunities, our structural environment and living spaces vary. In line with the increasing supply and demands of human beings, technological developments are increasing day by day, and they are trying to meet the expectations. The technological developments that started with the French Revolution show themselves in our living spaces, in every environment, where human beings exist and play the first-order factor in our lives. There is a process where living spaces and designs change and technological developments restructure the social environment of human beings. Technology, which developed rapidly, especially after 1990, is no longer a necessity but has become an indispensable part of our social life. Today, our relations with each other are now in a direct connection with technology. While our living spaces are being renewed and changed so rapidly, today's adequacy of architectural education should be questioned. Has the education given in architectural education been able to meet the rapidly increasing demands of human beings? Have technological opportunities been a part of architectural education and can they use it effectively? The answer to these questions will be tried to be answered within the scope of architectural education, which is the focus of the research. In particular, the extent to which architectural design, which has a great place in the virtual reality environment, is supported during the university education process will be explored and the relationship between technological developments and design education will be revealed. In addition to the resource and data analyses to be carried out at all universities that provide architectural education accredited by YOK throughout Northern Cyprus, the research will also include observation methods and reports.

**Keywords:** Architectural education, technology, living spaces, virtual reality, design, North Cyprus.

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## 1. Introduction

The architectural profession has a complex structure as a character: concrete elements, such as buildings, materials and structures; abstract elements, such as time, space and character; it carries measurable factors, such as static, mechanical and topography together. The most enjoyable and most uncomfortable aspect of architecture is its open-ended, which is a mixture of these measurable or immeasurable features (Cook, 1996).

It has become the fact that globalisation has spread effectively to all the areas of life and has an impact on many areas of the world. These effects are: economic, political and socio-cultural effects. The most important result of these effects is on education, which is the foundation of culture. The profession of architecture is indirectly and indirectly affected by globalisation due to its versatility and cooperation with many professional fields. It is impossible for architecture education not to be affected in an environment where both education and the profession of architecture are effectively under the influence of globalisation.

With the industrial revolution, it changed from the production style based on human and animal power to the production style dominated by machine power. The industrial revolution is accepted as an important turning point in the history of humanity, with this revolution, while the lifestyle of the western people has changed radically, as Bulent Ozer mentioned in the 'Auxiliary Course Book of History Lessons', population growth and the increase in living standards for the first time in the world history were realised together (Ozer, 2020). More fabrication, more production, more transportation, increased economic power, industry and commerce, higher purchasing power and greater job opportunities have been rapidly revealed. Products that are produced with human hand power and are simpler are replaced by better quality and inexpensive products that are produced in factories.

Since the main purpose of the revolution is to respond to the wishes of human beings, new horizons are opened in order to meet these needs, and accordingly, new social problems and the necessity of producing new architectural solutions emerge. With the industrial revolution, while the institutions and structures of the society change on a political and ideological basis, traditional behaviours, values, norms and patterns of behaviour are transformed depending on rational (rational) processes (Erkan, 1993).

The first formal architecture education started in the 19th century with Ecole Des Beaux Arts. This method, which is completely at the discretion of the studio coach and fulfils the demands of the authority, has brought studio training, learning by doing, evaluation by competition and evaluation methods that are still in use with art and design education. The concept of globalisation, which emerged with the discovery of a steam engine, gained momentum with the industrialisation and the formation of colonial states and the world entered a rapid change.

Ecole Des Beaux Arts, which is accepted as a school with its innovative approaches and methods in architectural education, started to receive criticism by students, educators and professionals towards the late 1920s, as it emerged in response to the values of the time and the needs of the management in France. The method was outdated and the projects were free from submission, and the pedagogy of the training given by the competition method was challenged. As a result of the technological developments that emerged as a result of the industrial revolution following the First World War, the Bauhaus model emerged (Salama & Wilkinson, 2007).

The philosophy of 'architecture for society' lies at the heart of Bauhaus education. This education model, which attaches importance to applied education, aimed to enable the society to benefit from art and architecture, and to combine the concepts of art and craft to create functional products. By introducing the concept of industrial design for the first time, various industrial materials were used in arts and architecture education. The purpose of design in the Bauhaus period is defined as combining art and technology for ordinary people, encouraging industrialisation by accepting design as a part of daily life (Teixeira, 2005).

The concept of ‘architecture for the society’ was closed in 1933 by the Nazi administration, who believed that architecture should be under the authority of the authority. As a result of the oppressive Nazi regime in Germany, artists and intellectuals who had to migrate from their countries have established art schools in their countries of origin, or have assumed high-level duties in the existing art schools and enabled the Bauhaus school to spread all over the world. With the changing global balances, the speed of development of technology has increased, the means of transportation have increased and easier and faster methods have been developed with various new technological structures for communication, globalisation has been connected with globalisation and each development has affected every segment as a common subject.

It is seen that Ecole des Beaux Arts and Bauhaus, architectural education schools, have emerged in order to keep pace with the global structure and constantly changing world structure and to meet the expectations. Ecole Des Beaux Arts, which is always under the control of the authority and always serving the administration, could not keep up with the globalising and industrialising world and caused the birth of the Bauhaus school. The Bauhaus school, which started with Bauhaus, met the expectations of the society to a certain extent, has left the issues discussed in art and architecture education in its short-term active life, and is still indispensable by many architectural authorities, and against the changing world conditions and increasing globalisation, it undergoes changes and searches for alternatives to take it further.

There is a process where living spaces and designs change and technological developments restructure the social environment of human beings. Human beings develop a sense of belonging to the environment and places in which they live. The cultural history and sense of belonging that belongs to human beings have been in the history of humanity for hundreds of years. For this reason, wars are fought for owning the culture and living resources. The basis of many wars lies in the inability to share the geography due to the geographical location they belong to. This is basically from the desire to maintain the geographic location that they feel they belong to.

Technology, which developed rapidly especially after 1990, is no longer a necessity but has become an indispensable part of our social life. Due to technology, primarily, the forms of our living spaces started to change. For example, many living rooms or daily usage areas in our homes are shaped according to the television. Currently, while designing, an architect or interior designer plans the location of the television and creates a living space accordingly. When the TV was first released years ago, there was not a need for the TVs to lean against the wall as they have their own coffee tables, but the necessity of hanging on the wall with today’s technology affects our designs.

Today, our relations with each other are now in a direct connection with technology. As our living spaces are being renewed and changed so rapidly, the current adequacy of architectural education in both the World and Northern Cyprus should be questioned. It is seen that the education given in architectural education does not reach the level that can meet the rapidly increasing demands of human beings. It is evident that technological facilities can be made part of architectural education, albeit partially, but cannot be effectively used and / or used. In particular, the extent to which architectural design, which has a great place in the virtual reality environment, is supported during the university education process has been studied and the relationship between technological developments and design education has been revealed. In addition to the resource and data analysis carried out in all universities providing education approved by YOK throughout Northern Cyprus, research and observation methods and reports were also included.

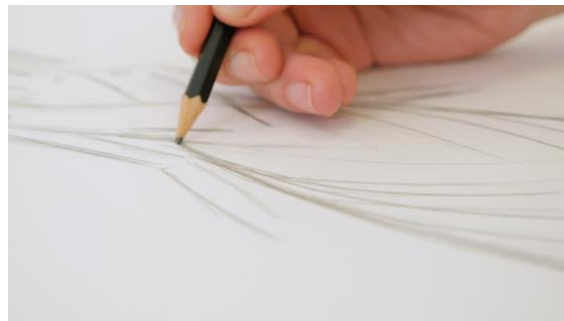
## **2. Present architectural education**

On the basis of architectural education defined by Kuhn, if we can identify and be aware of the crisis, we can solve it. It is not possible to find solutions without defining them. What we have identified today as a problem must be modified in the future. It is interpreted that it should be able to update itself according to new situations (Kuhn, 2000). In other words, architectural education should

be able to define the crisis, produce solutions and be able to vary according to the conditions in these solutions in the future.

It is an education system based on identifying and solving crisis problems in architectural education in Northern Cyprus. With the effect of globalisation, the curriculum was prepared with the basic currents in the world and has become a part of the global family. Of course, these have reasons to be discussed, but there are rules that must be followed in order to stay in touch with the world and to be accredited in all countries. For this reason, there are certain course contents, certain courses and internationally acceptable crediting and assessment systems for these courses. Thus, diplomas received from universities are valid by all countries and students can transfer between schools by horizontal transfer. In order for architecture education to be approved by the Chamber of Architects or similar institutions in each country and to perform their professions, students must have received an accredited University education.

For this reason, and, in particular, in the course of its activities, both in Northern Cyprus and Turkey, architecture schools still need to carry out in accordance with the tradition of the Bauhaus tradition. In architectural education where the visual expression comes to the fore, besides both hand drawing techniques and computer-aided drawings, three-dimensional model-modelling methods are also used. Of course, with the introduction of the computer in our life and the development of technology, the expression methods gained diversity, and the chance to achieve fast results and to go back and edit has emerged. It is inevitable to make use of the advantages that technology brings to our lives and to speed up the design process and make it more practical. In Traditional Architecture Education, education has two types of visual expression. One is the traditional hand drawings and the other is the digital visual expression that is renewed day by day with the technology of the new age, namely, the forms of presentation. Education, which starts with traditional hand drawing in many architecture schools, is supported by digital presentation techniques and ends with a completely digital visual expression method.



**Figure 1. Traditional hand drawing**



**Figure 2. Coloured traditional hand drawing**

One of the most important points of architectural education is that it teaches architect candidates how to convey their dreams with visual expression. The best way to do this is to provide the three-

dimensional perception of the design process, which is started by drawing a sketch, to place it according to its location in the field and to transfer it to a visual expression in a scale.

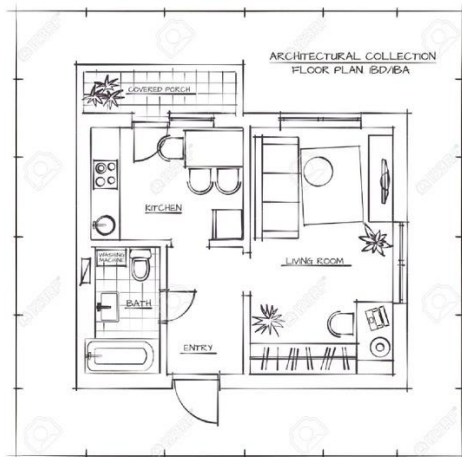


Figure 3. Two-dimensional plan drawing



Figure 4. Coloured two-dimensional plan drawing

‘Drawing is the depiction of a building or any architectural element using line, tone and colour’ (Ates, 1999). For this reason, the drawing and the quality of this drawing are very important in order to explain the designed project and to understand the dream created by the architect in his mind. The drawings made by all the traditional methods can also be drawn digitally in today’s technology. Technical drawings drawn in digital media are also called vector drawings. The biggest advantage of vector drawings is time, a chance to go back and fix without loss.

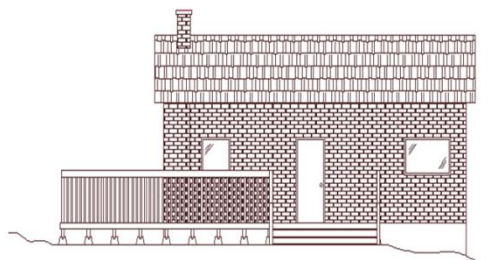


Figure 5. Drawings of facades in a digital environment



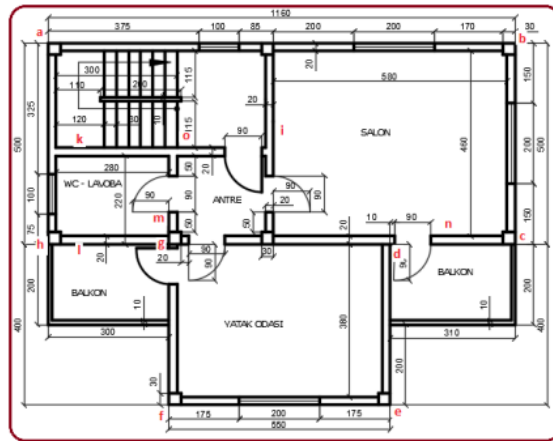


Figure 6. Plans of drawings in digital media

Of course, only architects or people associated with this profession can fully understand the two-dimensional design drawings of architects and candidate architects. For this reason, the fact that three-dimensional models and drawings come to the fore makes it easy for the projects to be easily appreciated and understandable by everyone, both as a perception and as a presentation. For this reason, within the framework of traditional architectural education, projects are presented with hand drawing perspective, three-dimensional modelling method and model making method.

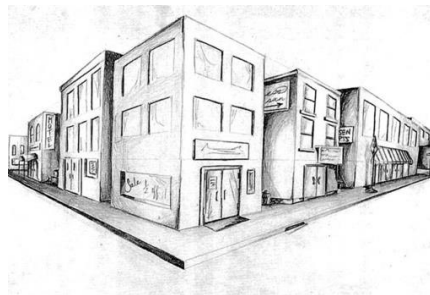


Figure 7. Perspective hand drawing



Figure 8. (a) Perspective digital drawing and (b) Project model

In general, architectural education is handled on the basis of ‘design studios’, and it is important that other courses are supportive courses. In the studio studies, tutorial lessons are provided to teach the students to present, create and prepare the project he / she wants to design. In these theoretical

lessons, practical methods are also used and students are taught how to practice with various exercise projects.

It is desirable that a student with an architectural education has the ability to design, have the ability to diagnose and solve the problem, and in his solution, he can produce data that are both visually and aesthetically rich and that can completely solve the problem. It is aimed to graduate people who trust the solution method they have produced and designed in line with the education received at universities, who have high design power and, most importantly, can make presentations.

### **3. Innovative architecture education**

In line with the speed of development of today's technology and the consumption-oriented demands of the societies, especially in living spaces and built environment, which are accepted as indicators of economic income, we are seriously affected by these developments. Architectural design, the presentation techniques of these designs and the fact that the materials to be used in the design are constantly renewed with up-to-date and technological products area serious sector and bring together designers and architects who have to develop themselves regularly with this sector.

One of the biggest factors in the Globalising World, which we interpret, is the formation of structures that are decreasing, less sensitive to the surrounding construction and nature, and designed with the language of materials and design used all over the world. Due to this factor, a structured environment is encountered, consisting of uniform, culture-driven structures that use standard, same-type materials.

In line with the increasing demands of the societies, designers and architects should produce solutions with these due to technology, and with these solutions, they should provide highly functional and functional answers to design problems. It is necessary to present the designed spaces and structures to the customer and inform them in the most detailed way using today's technology, to choose the materials correctly and of course and to provide their customers with more precise and clear information on how much the economic cost will occur.

In traditional architectural education, of course, while many of these subjects are met with traditional methods, architectural projects where 2D drawings, dozens of maps to be produced, models and many points that have not been fully detailed are presented to customers and the construction process gets started. In the construction process, serious problems are encountered, the idea of the application area changes when the customer meets the material and sudden decisions and changes are made for the places that he thinks are not what he imagined. Of course, this process creates problems between the customer and the architect, due to problems with the subcontractor who carries out the construction, and also causes serious losses in both material and time.

In today's technology, the structures designed with various methods are both perceived in three dimensions in detail, especially the perception of what environment will be created by navigating the living spaces easily, and seeing how to benefit from lighting and daylight, both the texture of the material and the harmony of the colours can be easily observed; it can be seen as perceived. When we think that it can be done in activities such as travelling, sitting, walking and lying down in the structure designed in today's technology, it is possible to say that the possibility of minimising the margin of error, eliminating roughness in design and creating spaces according to everyone's demand is much more effective and satisfying than two-dimensional drawings.

#### **3.1. Virtual reality**

The designed structure is intended to be drawn in detail in 3D, and to be exactly the same with the reality of the resulting product by placing the material colour texture. It is a method for producing a design prototype made through various computer programs to provide the effect of daylight and lighting elements, style and size, and the application of the design products on site. Virtual prototypes

are the most basic virtual reality applications in production (Reimer, 1994). In terms of advantages, by seeing the on-site application, making corrections according to the needs by making a return provides full decisions before the application. The result of the program can be seen as a video movie, and it can be described as detailed in desired places and to obtain clearer realistic images.



**Figure 9. Virtual reality**

### **3.2. Augmented virtual reality**

Like virtual reality, it is not presented with two-dimensional drawings, but with drawings made with three-dimensional special programs. Again, the spaces are designed in detail, but this time the biggest difference is the use of reality enhancing elements. In virtual reality, while visiting the design presented as a video film, in the augmented virtual reality, the possibilities such as being in the space, walking around, lying down, walking and touching the presented objects are allowed. Touched glove (Data Gloves) is used in augmented virtual reality, and the feeling of being in the space is provided by wearing glasses. Special gloves called Data Gloves bring the concept of three-dimensional sound and similar technological devices to the agenda (Sui et al., 2001). In other words, it is understood that with this technology, more expectations are increasing and the implementation of three-dimensional sound and similar technologies is not too far.

Virtual reality and augmented virtual reality enable the design world to be used from the smallest to the largest scale, and the most important is the fact that the products can be seen in real form, colour and lighting before they are produced. In addition, it is possible to detect defects and inaccuracies that may occur before starting the production phase and allow intervention while in the design phase.



**Figure 10. Augmented virtual reality**

### **3.3. Drone usage**

In architectural applications, before the design phase, the land on which the building will be built and the conditions of this land are checked and the size and shape of the land are determined. Of course, this takes time. The land is measured on site, drawn, photographed and on-site conditions checked. With today's technology, measurement of lands, taking photos and even transferring them to virtual reality programs can be done through drones. Drones and small robots are small wheels or



flying devices, and they have the ability to record and take a 360-degree high-resolution video. Thus, it saves the data of each field they measure and then gives the opportunity to transfer to computers and virtual reality programs simultaneously or afterwards.



**Figure 11. Drone**

Organising traditional architectural education and education programs, YOK-approved Architecture Departments in Northern Cyprus, of course, have to keep up with the technological developments and the benefits of the age while providing traditional and basic education. It should raise the expectations of societies and individuals who will produce solutions to meet these expectations and graduate their students with that equipment.

#### **4. Northern Cyprus-approved universities and architecture programs**

##### **4.1. American University of Cyprus**

Traditional architecture education is given under the Faculty of Fine Arts. The formal education system is implemented, and the education system is maintained in order to provide students with critical criticism, especially in studio lessons, two-dimensional drawing and three-dimensional drawing by academicians. In the evaluation and grading system, a student's participation in the lesson and the courses are made by the juries for grading.

1. Term Basic Design Studio, Architectural Drawing 1, Building Technology 1, Mathematics, Art and Cultural History.
2. Introduction to the Period Architectural Design Studio, Architectural Drawing 2, Building Technology 2, Architectural Culture, History of Modern Architecture.
3. Period Architectural Design Studio 1, Digital Design and Presentation 1, Building Technology 3, History of Contemporary Architecture, Elective, Turkish 1.
4. Period Architectural Design Studio 2, Digital Design and Presentation 2, Environmental Design Systems, Elective, Technical Elective, Turkish 2, Internship 2.
5. Period Architectural Design Studio 3, City Design and Planning, Human Factor in Design, Professional Ethics, Technical Elective, History of Ataturk's Revolutions 1
6. Period Architectural Design Studio 4, Restoration and Conservation Principles, Technical Elective, Technical Elective, Technical Elective, Ataturk Revolution History 2, Internship2
7. Term Architectural Design Studio 5, Graduation Research, Project Management, Technical Elective, Technical Elective.
8. Term Graduation Project, Portfolio and Presentation, Professional Practice, Technical Elective, Technical Elective

#### **4.2. Eastern Mediterranean University**

Traditional architecture education is provided under the Faculty of Architecture. The formal education system is implemented, and the education system is maintained in order to provide students with critical criticism, especially in studio lessons, two-dimensional drawing and three-dimensional drawing by academicians. The evaluation and grading system, the student's participation in the course and the courses are made to be graded by the juries.

1. Term Basic Design Studio, Graphic Expression 1, Introduction to Design, Communication in English 1, Academic English 1, Mathematics and Geometry for Designers, Atatürk's Principles and Revolution History, Turkish as a Second Language
2. Introduction to Term Design Studio, Graphic Expression 2, Introduction to Design Technology, Academic English 2, Communication in English 2, Computer 1, Human and Socio-Cultural Factors in Design.
3. Period Architectural Design Studio 1, Architecture and Ecology, Architectural History and Theories 1, Introduction to the Tectonics of Structural Systems, Construction and Materials in Architecture 1, Computer-Aided Design, Summer Practice 1
4. Period Architectural Design Studio 2, Architectural History and Theories 2, Tectonics of Bending Strength Bearing Systems, Construction and Material 2 in Architecture, Energy and Physical Environment Problems in Design, Urban Design Theory.
5. Period Architectural Design Studio 3, Conservation and Restoration Principles, Tectonics of Form Resistant Structural Systems, Architectural Structure and Materials 3, Urban Design Processes, Numerical Presentations in Architecture, Summer Practice 2
6. Period Architectural Design Studio 4, Architecture and Design Theories, Area Elective Course 1, Application Project Drawings, Architecture and Environmental Systems in Architecture, Area Elective Course.
7. Period Architectural Design Studio 5, Architectural Design Studio 5, Economic and Administrative Issues in Architecture, Area Elective Course, Area Elective Course, University-wide Elective 1, Summer Practice 3
8. Term Architecture Graduation Project, Professional Issues in Architecture, Area Elective Course 5, University General Elective 2

#### **4.3. Cyprus International University**

Traditional architecture education is provided under the Faculty of Fine Arts, Design and Architecture. The formal education system is implemented, and the education system is maintained in order to provide students with critical criticism, especially in studio lessons, two-dimensional drawing and three-dimensional drawing by academicians. The evaluation and grading system, the student's participation in the course and the courses are made to be graded by the juries.

1. Basic Design in Period Architecture, Architectural Drawing 1, Static in Architecture, Reading and Writing Skills 1, Free Hand Drawing, Introduction to Computer, Basic Mathematics.
2. Basic Design in Period Architecture 2, Architectural Drawing 2, Introduction to Structure, Descriptive Geometry and Perspective, Reading and Writing Skills 2, Visual Communication Techniques, Turkish.
3. Period Architectural Design 1, Building Materials, Building and Construction Management 1, Building Physics 1, History of Ancient Architecture, Area Elective, Computer-Aided Design 1
4. Period Architectural Design 2, Introduction to Urban Planning and Design, Building and Construction Management 2, Building Physics 2, European Architectural History, Area Elective, Computer-Aided Design 2.

5. Period Architectural Design 3, Building Behaviour and Analysis 1, Restoration and Conservation 1, Introduction to Landscape Architecture, Introduction to Interior Design, History of Turkish and Cyprus Architecture, Internship 1.
6. Period Architectural Design 4, Building Behaviour and Analysis 2, Restoration and Conservation 2, Contemporary Structures, Solar Control, Contemporary Architecture History.
7. Term Architectural Design 5, Integrated Application Project, Architectural Graduation Project Research, Cost Estimation and Site Management, Area Elective, University Elective, Internship 2.
8. Graduation Project Period Architecture, Design Ethical and Legal Issues, Elective, Design Culture, History of Civilisation, History of Modern Turkey, University Elective.

#### **4.4. Lefke Avrupa Universitesi**

Traditional architecture education is provided under the Faculty of Architecture. The formal education system is implemented, and the education system is maintained in order to provide students with critical criticism, especially in studio lessons, two-dimensional drawing and three-dimensional drawing by academicians. The evaluation and grading system, the student's participation in the course and the courses are made to be graded by the juries.

1. Term Basic Design 1, Graphic Communication 1, History of Art and Architecture 1, Free Hand Drawing, English 1, Basic Math 1, Turkish.
2. Semester Basic Design 2, Graphic Communication 2, History of Art and Architecture 2, Introduction to Building Science, English 2, Basic Mathematics 2, Introduction to Computer.
3. Period Architectural Design 1, Computer-Aided Drawing 1, History of Art and Architecture 3, Static, Elective 1, Elective 2, Elective 3.
4. Period Architectural Design 2, Discovery and Mapping, Building Material and Finishing, Computer-Aided Drawing 2, Building and Details 1, History of Art and Architecture 4, Elective 4.
5. Period Architectural Design 3, Building and Details 2, Mechanical Systems in Building, Elective 5, Elective 6, Summer Practice 1.
6. Period Architectural Design 4, Principles of City Planning and Design, Structure and Details 3, Conservation and Restoration, Elective 7.
7. Period Architectural Design 5, Construction Project Design, Graduation Project Research, Free Elective 1, Summer Practice 2.
8. Period Architectural Design 6, Professional Practice, Elective 8, Free Elective 2, Ataturk Revolution History.

#### **4.5. Near East University**

Traditional architecture education is provided under the Faculty of Architecture. The formal education system is implemented, and the education system is maintained in order to provide students with critical criticism, especially in studio lessons, two-dimensional drawing and three-dimensional drawing by academicians. The evaluation and grading system, the student's participation in the course and the courses are made to be graded by the juries.

1. Fundamentals of Architectural Design 1, Visual Communication Techniques 1, Introduction to Architectural Concepts, Mathematics for Designers, English 1, Turkish 1, History of Revolution 1.
2. Fundamentals of Architectural Design 2, Visual Communication Techniques 2, Building and Materials 1, History of Civilisation, English 2, Turkish 2, History of Revolution 2, Measurement Technique.
3. Period Architectural Design 1, Building and Materials 2, History of Art and Architecture 1, Static - Mechanics, Computer Aided Drawing 1, Free Hand Drawing Technique, Departmental Elective.

4. Period Architectural Design 2, Environmental Control Systems 1, History of Art and Architecture 2, Computer-Aided Drawing 2, Building and Materials 3, Departmental Elective, Summer Practice 1.
5. Semester Architectural Design 3, History of Art and Architecture 3, Carrier System Analysis, Environmental Control Systems 2, Departmental Elective, University General Elective.
6. Term Architectural Design 4, Urban Design and Planning, Faculty Elective, Departmental Elective, University General Elective, Summer Practice 2.
7. Term Architectural Design 5, Construction Management, Restoration and Conservation Theory, Faculty Elective, Departmental Elective, University General Elective.
8. Semester Graduation Project, Zoning Law, Professional Practice and Ethics, Faculty Elective, Departmental Elective.

#### **4.6. Girne American University**

Traditional architecture education is provided under the Faculty of Architecture, Design and Fine Arts. The formal education system is implemented, and the education system is maintained in order to provide students with critical criticism, especially in studio lessons, two-dimensional drawing and three-dimensional drawing by academicians. The evaluation and grading system, the student's participation in the course and the courses are made to be graded by the juries.

1. Term Basic Design Studio, Architectural Drawing 1, Building Technology 1, Mathematics, Art and Cultural History.
2. Introduction to the Period Architectural Design Studio, Architectural Drawing 2, Building Technology 2, Architectural Culture, History of Modern Architecture.
3. Period Architectural Design Studio 1, Digital Design and Presentation 1, Building Technology 3, History of Contemporary Architecture, Elective, Turkish 1.
4. Period Architectural Design Studio 2, Digital Design and Presentation 2, Environmental Design Systems, Elective, Technical Elective, Turkish 2, Internship 2.
5. Period Architectural Design Studio 3, City Design and Planning, Human Factor in Design, Professional Ethics, Technical Elective, History of Ataturk's Revolutions 1
6. Period Architectural Design Studio 4, Restoration and Conservation Principles, Technical Elective, Technical Elective, Technical Elective, History of Ataturk Inklaplar 2, Internship2
7. Term Architectural Design Studio 5, Graduation Research, Project Management, Technical Elective, Technical Elective.
8. Term Graduation Project, Portfolio and Presentation, Professional Practice, Technical Elective, Technical Elective.

#### **4.7. International Final University**

Traditional architecture education is provided under the Faculty of Architecture and Fine Arts. The formal education system is implemented, and the education system is maintained in order to provide students with critical criticism, especially in studio lessons, two-dimensional drawing and three-dimensional drawing by academicians. The evaluation and grading system, the student's participation in the course and the courses are made to be graded by the juries.

1. Term Basic Design Studio, Graphic Communication 1, Geometry and Mathematics for Designers, Introduction to Art and Design, English 1.
2. Introduction to the Period Architectural Design Studio, Graphic Communication 2, Architectural Presentation Techniques, Introduction to Design and Technology, 2nd Turkish Language.

3. Period Architectural Design Studio 1, Ergonomics in Design, Building Material and Construction 1, History of Architecture 1, Ecology and Building Design, Computer-Aided Drawing.
4. Period Architectural Design Studio 2, Building Systems Technical, Building Material and Construction 2, History of Architecture 2, Area Elective 1, Internship 1.
5. Period Architectural Design Studio 3, Restoration and Conservation Principles, Building Design with Environmental Consciousness, Building Material and Construction 3, Area Elective 2, Area Elective 3.
6. Period Architectural Design Studio 4, Introduction to City Planning, Sensory Architecture; Light and Sound, Area Elective 4, Summer Practice 2.
7. Period Architectural Design Studio 5, Professional Practice, Research Methods, Technical Drawing, Area Elective 5, Summer Practice 3.
8. Period Architectural Design Studio 6, Building Management and Cost Calculation, Area Elective 6, Area Elective 7.

#### **4.8. Girne Universitesi**

Traditional architecture education is provided under the Faculty of Architecture. The formal education system is implemented, and the education system is maintained in order to provide students with critical criticism, especially in studio lessons, two-dimensional drawing and three-dimensional drawing by academicians. The evaluation and grading system, the student's participation in the course and the courses are made to be graded by the juries.

1. History of Art and Architecture, Introduction to Architecture, Basic Design, Architectural Communication, Mathematics 1, Building Information 1, English 1.
2. Term Architectural Project 1, Design and Geometry and Perspective, Mathematics 2, Building Information 2, Material 1, Building Information 1, English 1.
3. Period Architectural Project 2, Building Information 2, Building Information 3, Material 2, Architecture and Art History 2, Static, Computer-Aided Design 1.
4. Term Architectural Project 3, Building Information 4, Building Physics 1, Architecture and Art History 3, Mechanics, Computer-Aided Design, Summer Practice (Construction Site).
5. Period Architectural Project 4, Building Physics 2, 20th Century. Architecture, Structural Analysis 1, Urbanism 1, Advanced Computer-Aided Design.
6. Term Architectural Project 5, Measurement Technique, Urbanism 2, Construction Statics 2, Technical Elective Course, Summer Practice (Office)
7. Term Architectural Project 6, Construction Management, Building Physics 3, Restoration and Conservation Theory, Technical Elective Course.
8. Semester Graduation Project, Zoning Law, Professional Practice and Practice, Technical Elective Course, Technical Elective Course.

#### **4.9. General evaluation**

When we look at the schools that provide architecture education approved by YOK throughout Northern Cyprus, it is seen that the general result is that the courses are taught in line with a traditional curriculum and students are generally trained with traditional techniques. Except for the exceptional cases where the trainer applies the initiative and its own methods and increases the diversity within the general framework, the training is carried out by adhering to traditional methods.

Traditional methods: the Republic of Turkey Higher Education Council (YOK) is determined for the accreditation of the results obtained by the horizontal and the provision of vertical transitions between schools, which is due to set criteria for the realisation of membership to professional groups in the country. By considering the number of credits and the content of the courses, the professions



are accredited and the students who want to transfer between schools are transferred. For this reason, programs show similarity with each other.

Looking at the general picture, in many of the architectural education in Northern Cyprus, a computer-supported drawing lesson is provided for one or two semesters. Although this is the case, the learning outcomes of students in these lessons are limited to 2D drawing and 3D vector drawing.

Elective courses are available in the programs of all the universities. Of course, it seems impossible to update and renew the programs at once, as it will be a rapid transition at the first stage. However, we can see that it can be turned into a chance at universities, where there are many elective courses. Technological courses, which will be increased in elective courses, will enable the training of individuals who are equipped with technology that is suitable for today. In this way, the personal demands of the student will be answered, and the opportunity for self-improvement will be provided on the technological issues with the infrastructure.

In today's conditions and due to the developing technology, the fact that graduates take place in the market and bring difference will surely ensure that they are successful only when they are individuals who use today's technology effectively. For this reason, the creation of a curriculum that keeps up with technological developments is important in every respect.

Graduates' job demands, to take place in the market, and of course financial gain, will only be realised when they graduate as individuals who are equipped under the conditions of that day. Self-sacrifice and curiosity of the person is, of course, one of the active roles. There should be educational institutions that will provide these opportunities to individuals which will offer these opportunities.

## 5. Result

Technology: it is a complex structure in which management, process, thoughts, machinery and human organisations are integrated (Hoban, 1965, p. 242). It is a human being who creates technology, and technology will continue to develop in line with the supply–demand relationship. This effort belongs to human beings and will continue as an unceasing process as long as man does not give up. Therefore, it is essential that every educational institution has an indispensable principle to follow the technological developments in every branch of education and to ensure that students graduate with that equipment.

It is seen that the field of movement has been restricted, and it is difficult to get out of the frame whose borders are drawn in accordance with the accreditations of architecture education given at universities in Northern Cyprus. Of course, it will take time to break them, but it should not be forgotten that producing methods will still be in the hands of educators. Especially in elective courses, it will be the fastest and most practical solution to equip them with courses that actively involve technological elements and activate technology use. The change of all programs, and particularly the process of change of the training program rooted in the Republic of Turkey, is bound to be long and difficult. For this reason, the elective courses that have provided the most appropriate step adaptation in this development process and the fact that they will act as catalysts in these courses are clearly seen.

Architectural education in the world is free, more adapted and adapted to different student outcomes. Along with technological developments, there are also schools that apply traditional methods and graduate with these methods. In the United Kingdom, De Montfort University in Leicester offers virtual and augmented virtual reality lessons under the 'technology of the future' course in various programs. When the university programs are examined, the weight of these courses, especially in elective courses and graduate courses, attracts attention. As mentioned before, student demand is also an important factor. Besides architectural education, Architecture Technology education is offered as a 4-year program, and the demanding student is provided with this technological education.

Of course, everything has to be demand and demand-oriented. For this reason, the programs to be organised can be evaluated as two different departments as elective courses first and then as 'traditional architecture education' and 'innovative architecture education', respectively. Thus, it is seen as a possible option that people who want to be educated make choices and receive training in that direction.

Today, in a process where everything is speeding up, the importance of time-quality duo has increased considerably. For this reason, due to new technological drawing methods, both the speed and the rate of finding the requested one has increased. Thus, the importance of a new drawing and presentation methods has increased in line with the demands. The fact that the cost can be calculated in a detailed way, the details have been decided before the construction process begins, play an important role in terms of both the duration of the construction and the prevention of economic problems.

Technology is also creating functional ways to dominate the nature by employing the skills acquired in its most general sense (Alkan, 1998, p. 13). Talents, when combined with technology, will push the limits of human creativity. Of course, there is always a need and will exist for the architects who push the limits and exceed themselves. It has become one of the basic conditions of this century to revise education systems in this direction and to train architects with technological equipment in line with supply and demand.

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