Abstract. The history of architectural education during the interwar period is presented in this article. The basic directions of an architectural education development in Lviv of this time have been determined and the activity of the most prominent representatives of the Lviv architectural school has been analyzed.

Key words: Lviv Polytechnic, Department of Architecture, architects, professors.

1. Introduction.

In 1928–1929, Witold Minkiewicz was elected the rector of the Lviv Polytechnic where he worked as an architect and lecturer. In his inaugural speech he said: “Contemporary architecture rejects everything that is not caused by necessity. It corresponds with the guidelines of contemporary civilisation, aimed at the most minute exploitation of the natural properties to intensify the level of public life. The old forms are replaced by construction problems. The rhythm of repetitive elements of standardized building and monumental, primitive forms of factories influence artistic imagination stronger than stylish old-fashioned templates. The natural charm of the material used in accordance with its structure and properties, replaces mostly insincere effect forms of old” [1]. In this way, within the walls of Lviv Polytechnic, educating the future architects was officially legitimized that broke with Traditionalism and Historicism and changed the focus to assimilating new modern forms, materials and construction techniques. The new focus became the modernism. Architectural education in Lviv strove to be modern and progressive. And it was so, despite having a lengthy history of development and having deep and strong roots in tradition.

2. Basic Theory Part

The article deals with the analysis of information concerning the history of architectural education in Lviv Polytechnic during the interwar period. On the basis of analysis of the most significant facts and events, the main directions of the development of architectural education in Lviv are determined, the contribution of the Lviv architectural school to the formation of architectural education in the period of the Second Polish Republic is determined.

3. Results and Discussions

The history of Lviv Polytechnic, and consequently, the formation of the Lviv school of architecture within its walls, has its roots early in the nineteenth century when on November 7, 1817, by decree of Austrian authorities a three-year school designed on the Viennese model was opened in Lviv. In
1825–1826, the school underwent reforms which changed its nature to a preparatory school. The graduates of this school were able to continue their studies at the relevant departments of Lviv University, particularly in the Department of Construction. As a result of long-term public efforts as well as the efforts of the Galician Parliament, Lviv Technical Academy was created by imperial decree on January 24, 1843 and its grand opening was held on November 4, 1844. This day is considered to be the official birthday of Lviv Polytechnic. The Technical Academy was composed of an Engineering Department which included the Department of Construction (formerly at the university). At the Department of Construction architecture was taught by the professor Jerzy Beskida and freehand drawing by the professor Karol Gunglinger. From 1853 till 1865 Jan Gabrieli taught design and architecture. After 1865 these subjects were delivered by Professor Edmund Stiks[1]. Initially it was a two-year program, but starting in 1847–1848 the program was re-organized into a three year technical school, a one year business school and a two-year real school, which later evolved into a separate secondary technical school [2].

In connection with setting the Galician autonomy in 1867, and Lviv self-governance in 1870, the city had to present itself as a European capital, and the territory needed to rise to a new economic and cultural standard. Therefore, in 1871, the Technical Academy was designated a university. On June 18, 1871 the professor Julian Zachariewicz (1837–1898) was appointed the head of the Construction Department (building construction and architecture, combined with the mechanics of building) at Technical Academy. Thanks to his efforts in 1872–1873 a separate school of architecture was founded at the Technical Academy.

In 1871, when the Technical Academy became the institution of higher education, the necessity to build a new building that would convey not only its high status, but also meet the new requirements of a technical education appeared. The chosen construction site was in Nowy Świat Street (today Stepan Bandera Street), which belonged to the Cracow suburban district which was being actively developed at that time. Revitalized construction activities contributed to the opening the railway line in 1861 and the construction of the first railway station, which became a draw for the dynamic development of the urbanization process. Nowy Świat Street, which was directly linked to Grodetska Street – the main thoroughfare of the city – became very representative in its character. The construction of the new Technical Academy was to become the dominant part of the street as well as the whole district.

In 1872 Emperor Franz Joseph I-st gave permission for the construction of new facilities for the Academy, and the Austrian government contributed 1,300,000 zlotys for their construction. Julian Zachariewicz was commissioned to design the new building. Hoping to create a school that would meet modern requirements and the needs of a higher technical school, the architect toured Europe, where he studied the functional and architectural-planning solutions of the polytechnics in Vienna and Munich. The project of the new technical school was completed in 1872 and quickly approved by the Austro-Hungarian Ministry of Education. The Technical Academy, which was constructed under the supervision of Julian Zachariewicz was begun in 1874 and completed in 1877. In designing the main building, the architect used popular forms of Italian Renaissance which emphasized the connection with Austrian architecture of that time, where Italian New-renaissance was extremely popular. The first draft was similar to the Polytechnic in Vienna. But in the second, implemented version, the key architectural elements of the main facade became Corinthian columns capped into one compact sculptural group that completed the composition. Unlike the Polytechnic in Vienna, where the main axis is emphasized by its relationship with its internal courtyard, the Lviv Polytechnic’s axis is connected with its main lobby and monumental stairwell [3].

Julian Zachariewicz became the first rector of the establishment of higher education whose name was changed to Technische Hochschule or the Polytechnic School in October 1877. The change of the name emphasized the status of the academy which included a Construction Department where architects received their training. In 1894 the Construction Department was reorganized into the Department of Architecture. Due to the active pedagogical, creative and organizational activities of Julian Zachariewicz the importance of the Department of Architecture and its significance in the architectural and construction practices of Galicia were growing day by day [4].

Symbolically, a professional career of Professor Julian Zachariewicz as the founder of the Lviv School of Architecture was launched with the construction of the school’s main building, which is the exact space and environment where he provided his personal example of how to expertly apply knowledge into practice as well as the other architects were to be moulded. His subsequent creative, educational, scientific and theoretical work
was just a confirmation of what had already been said. At the opening and consecration of the new building Julian Zachariiewicz demonstrated his talent as a theorist, with his solemn lecture "Sztuka w służbie techniki" (Art in the service of technology). Earlier, in the spring of 1877, his "Wkład o architekturze" (Lecture on Architecture), dedicated to the theoretical reflection on the history of architecture, the definition of style, the influence of religion and social change on architecture and the role of materials, design and current tastes in its formation was published. This treatise became the Professor's first theoretical work on architecture and the first work on this subject in Galicia [5].

It should be noted that the Department of Architecture at Lviv Polytechnic University was the only higher educational institution in Galicia that trained architects in the second half of the 19th and early 20th century. Its opening in Lviv nearly eliminated Galician students from the ranks of students at the Vienna Polytechnic’s school of architecture [6]. The creation of Galician own school of architecture lead to the result that, since the 1890s the graduates from the Lviv Polytechnic clearly outweighed others in municipal construction projects. Teachers of the first generation of architects from the Department were graduates of European architectural schools. Julian Zachariiewicz graduated from the Vienna University of Technology in 1858. He was not only an excellent administrator, but also a man with a great experience. In 1860 for example, he worked at the Lviv-Czerniowce railway in various positions – from engineer to Head of Transport in Czerniowce where he designed the railway station in Jassy. Later, while working in Lviv, he created many iconic buildings of the historical era. In addition to the above mentioned main building of Lviv Polytechnic, he designed such famous Lviv buildings as the Galician Savings Bank (1888–1891), villas for scientists and artists in the Kastelowka district, and the Church and Convent of the Franciscan sisters (1876–1888). From 1877 Julian Zachariiewicz was a member of the Polytechnic Society in Lviv, and in 1879 was the part of the Society’s administrative body. From the early 1880s he served as a correspondent for the Central Commission for the Study and Conservation of Art and History in Galicia. From 1888 he became a member of the newly created Circle of Conservationists and Correspondents of Eastern Galicia [7].

In addition to Julian Zachariiewicz, it should be mentioned the other outstanding personality among the second generation faculty of the Department of Architecture, namely Teodor Talowski (1857–1910). He belonged to a group of architects who were equally skilled in design, construction and teaching. Talowski attained his education in Cracow, Vienna (1875–1877) and Lviv (1877–1881) [8]. He was a disciple of Karl Konig and Julian Zachariiewicz and focused on the extensive study of ancient architecture of Middle Ages and the Renaissance, which contributed to his artistic training. Teodor Talowski designed nearly a hundred churches in different parts of western Galicia, and in 1897 he published a printed work on this accomplishment. From 1900 he worked at Lviv Polytechnic, and in 1906–1908 was the Chair of the Department of Architecture [9]. Architect, professor of drawing and ornamentation, restorer, a member of the Central Commission on the Historical Heritage of Art in Vienna, a member of the College of Fine Arts in Cracow, and board member of the Wawel Restoration Committee, teacher of Ancient Christian and Medieval Architecture at Lviv Polytechnic – it is the list of the professional and creative activities of Teodor Talowski [10].

At this time Jan Sas-Zubrzycki (1860–1936) launched his teaching career at the Polytechnic, whose peak occurred during the post-war period when he was holding the post of the head of the Department of Architectural History for many years. He was an outstanding practicing architect and a theoretician of architecture as well. In 1894 he published a fundamental work "Filozofia architektury. Jej teoria i estetyka" (Philosophy of Architecture, its Theory and Aesthetics), in 1901 "Żółkiew – szczegółowy opis zabytków" (Żółkiew – Detailed Description of Monuments), in 1905 "Kościół warowny w Bobrce koło Lwowa" (Fortified Church in Bobrka near Lviv), and in 1914–1916 a "Zwiedza historya sztuki" (Brief History of Art). A separate book published in 1895 was "Rozwój gotyckzymu w Polsce pod względem konstrukcyjnym i estetycznym" (The development of Gothic Architecture in Poland from a Structural and Aesthetic Perspective) [11].

Tadeusz Obmiński (1874–1932) also belonged to the second generation of lecturers at the Polytechnic School. In 1898 he graduated from the Department of Architecture at Lviv Technical Academy with the honour “especially gifted.” Obmiński was a practicing architect, but additionally from 1897–1905 he worked as an assistant at the Department of Building Structures, and from 1906–1908 as a designer at the Construction Department. After he defended his thesis “Genesis of Wooden Construction in Poland” in 1908, he became an assistant professor of drawing and wooden construction, and in
October 1910 professor and chairman of the Department of General Construction [12]. In 1912–1913 he was the dean of the Land and Water Department, in 1915–1916 and in 1920–1921 the dean of the Architectural Department, and in 1916–1917 the rector of the Polytechnic School. Tadeusz Obmiński combined active teaching and administrative activities with his architectural practice. In particular, prior to the First World War, he designed a lot of buildings in Lviv: in collaboration with Alfred Zachariewicz, the Chamber of Commerce building and the Institute of Technology. Working in collaboration with Iwan Lewiński he developed the forms of Ukrainian modernism in the architecture of the city and was the designer of the most beautiful facades of Secessionist tenement houses, creating a stylish vision of Lviv at the beginning of the 20th century.

An extraordinary personality was the architect, teacher, businessman, and Ukrainian public figure Iwan Lewiński (1851–1919). In 1868 he entered the Construction Department of the Lviv Technical Academy. After completing his studies in 1875, he stayed at the Academy. From 1901 Iwan Lewiński worked as an associate professor of Construction at the Lviv Polytechnic School, heading its Department of Applied Building. He also taught rural and railway construction. In 1909 Iwan Lewiński became a full-fledged professor. Gustaw Bisanz, a 1873 graduate of the Technical Academy worked at the Construction Department after graduation; in 1876 he was chairman of the newly established Department of Architecture II. In 1878 he became an associate professor and in 1883 a full-fledged professor. Gustaw Bisanz was elected in 1883–1898 and 1901–1903 as the head of the Department of Architecture. For a long time he headed the commission on the “second state examination” at the Construction Department. Twice, in 1888–1889 and 1898–1899, he was elected the rector of the Polytechnic. In 1877 he became a member of the Polytechnic Society in Lviv. Gustaw Bisanz was an active contributor to the magazines “Allgemeine Bauzeitung” and “Czasopismo Techniczne” and a member of the editorial staff of the latter in 1889–1890 [13]. He authored the textbook Budownictwo (Construction), which was used in Galicia through the 1920s. The book consisted of two volumes and contained 1500 illustrations. It was a unique Polish language manual of building materials, technologies and designs that were relevant to introducing the industrial methods of construction, such as the mass use of steel and concrete structures. In addition to writing his theoretical work he also worked as a practicing architect. The teachers of the Department of Architecture were active participants in local civic organizations. Thus, in 1876 Lviv, a group of 22 engineers and additional lecturers from the Polytechnic founded the Society of Certified Technicians (Towarzystwo Ukończonych Techników). In 1878 it was renamed the Polytechnic Society of Lviv (Polskie Towarzystwo Politechniczne we Lwowie). The purpose of the partnership was to unite engineers to deepen the knowledge of its members and familiarize them with technical progress. The Society published a periodical called “Dźwignia”, which was printed from the group’s inception; Julian Zachariiewicz was a member of the editorial board. Starting in 1883, the periodical was called “Czasopismo Techniczne”. Architect-Teachers from the Polytechnic were always active in the Society and contributed to the periodical. In 1908 the Circle of Polish Architects in Lviv was formed within the Polytechnic Society; one of the Circle’s founders was Tadeusz Obmiński. It was assigned a section indicated the members to support art and specifically architecture. They also planned annual exhibitions and participated in international architectural conferences [14]. In 1912 “Czasopismo Techniczne” began systematically reviewing pressing issues in architecture and construction.

Prior to the First World War seven major faculties were created at the Department of Architecture, each headed by prominent personalities whose names are associated with the best works of architecture in Galicia created in the second half of the 19th and early 20th centuries. Students of the Department of Architecture studied construction materials, design, the history of architecture and architectural forms, and drafting (houses, commercial and industrial buildings, and hospitals). The curricula and programs in 1873–1918 had a constant increase in the number of architectural and artistic classes, the stability of the technical-engineering component, and a gradual reduction in general subjects. Approximately 700 individuals graduated with an Engineer-Architect diploma during this time [15]. The system of architectural education anticipated that students would earn their diplomas only after a period of actual practice, so graduate students passed their final exams a year after graduation. A commission of no fewer than three professors assessed the students.
In 1902, Polytechnic School student Zygmunt Dobrzański along with his colleagues Waclaw Krzyżanowski and Marian Heitzman created the Union of Student Architects (or the ZSA – Związek Studentow Architekury). The students received a lot of support from Edgar Kovats, the Dean of the Department of Architecture and professor Władysław Pilat. At the first meeting of the ZSA on February 10, 1903, the group elected a chairman, secretary, and librarian. The Union was established to consolidate the student body; polytechnic students whose interests reached far beyond the curriculum. In 1904 it consisted of 36 students, who were guided by professors Edgar Kovats and Ivan Lewiński. Future Polytechnic professors were active in the ZSA, including Witold Minkiewicz, Marian Osiński, and Wiesław Grzymalski. Due to the activities of the ZSA, a large collection of books and professional periodicals were gathered in a short period of time. Students were also active in organizing architectural exhibitions and competitions, as well as photographing architectural landmarks and art [16].

The period until 1918 was extremely important for the development of the Lviv School of Architecture. A stable tradition was started with the continuation of the pedagogical component of the Lviv School of Architecture; teachers and students were actively involved in professional and artistic associations, societies, and art exhibitions; they contributed to publications and reported at meetings of the Polytechnic Society on issues connected to Lviv architectural and artistic creativity. But the most important was the fact that a European type of architectural education had been established in Galicia.

It should be noted that at the end of the nineteenth century polytechnics were extremely occupied with the question of the ways of further architectural development. In their theoretical contemplations they tried to answer the question: “What should architecture be in the future?” In 1877, Julian Zachariiewicz wrote in his Lecture on Architecture: “…unfortunately, the nineteenth century did not create its own style” [17]. However, changes were approaching, and the teachers and students were ready for them. A sad evidence of this was the students’ boycott of a well-known architect Władysław Sadłowski’s (1869–1940) classes in 1918 the representative of Secession and historic development of architecture. The students required the new trends in architecture [18].

The consequences of the First World War, which for Lviv marked the end of its political and cultural connection with Vienna, were particularly palpable in 1918. Lviv was no longer the capital of the largest province of the Austro-Hungarian Empire but simply a centre of a Polish province. It meant Lviv gave up its long held designation of cultural and intellectual centre to the capital – Warsaw. It is important that during the interwar period the Lviv Polytechnic remained one of the leading centres for educating the architects, competing even with the capital. The newly created Department of Architecture at the Warsaw Polytechnic did not command such a historic basis, so the trend of popular Modernism was immediately and quickly adopted. The Lviv School of Architecture, on the other hand, continued to develop on the foundation of its deep traditions. Perhaps, this was an important reason to ignore information about the development of Lviv architecture in relation to the rest of Poland. Contemporary professional publications contained a lot of information about the development of architecture in Warsaw, Gdynia, Silesia, but very little about Lviv [19].

So, in 1918, the Polytechnic’s Polish period began and caused a number of organizational changes. In 1919 the Polytechnic became subordinated to the Polish Ministry of Religion and General Education. On January 13, 1921, in accordance with the Ministry of Religion and Education’s order the name of the Higher Polytechnic School was changed to Lviv Polytechnic where, considering the new political and economic realities, changes were also made to the learning process. In the interwar period enrolment of architectural students increased from 103 students in the 1920–1921 academic years to 276 in the 1938–1939. From 1919 to 1939 2,277 individuals, including 63 women, obtained engineering degrees at Lviv Polytechnic [20].

In the early 1930s, the Department of Architecture included the following faculties:

- The General Construction Faculty led by professor Tadeusz Obmiński. Marian Nikodemowicz, Stanisław Kowalski, and Rudolf Śmiałowski also worked at this department. This faculty included courses in general construction, creating project expense estimates and construction law.
The Statics Faculty chaired by professor Adam Kuryło, which was founded in 1920, during the first post-war period. Teachers conducted classes during the second and third year of studies in statics, metal construction, rein-forced concrete construction.

The Faculty of Applied Art and Interior Design under the guidance of professor Władysław Sadowski (this was the successor to the Drawing and Modelling specialty, which was established back in 1872 and long headed by Leonard Marconi, then by Todor Talowski).

The History of Architecture Faculty which for many years was under the leadership of the professor Julian Zubrzycki, and then Marian Osiński. The faculty held classes for first and second year students which included drawing a historical architecture.

The Faculty of Architecture I for a long time (up to 1929) was led by professor Władysław Klimczak, who delivered a number of lectures, including Współczesny styl w architekturze (The modern style architecture) or Problemy współczesnego stylu w polskiej architekturze (The problem of modern style in Polish architecture) at the Polytechnic Society on 14 March 1922 and won twenty awards in various architectural competitions. The faculty was formed in 1913, by separating it from the Faculty of Drawing and Medieval Architecture. Up to 1918 it was headed by Adolf Szyszko-Bohusz, who later moved to Cracow. The staff also included Jan Bagieński.

The Faculty of Architecture II was guided by the professor Witold Minkiewicz. Its beginnings can be found in 1871, when it was called Building Construction and Architecture Faculty and headed by Julian Zachariewicz. In 1874 it was divided into the Faculties of Architecture I and II, and Architectural Forms Faculty. After the death of Julian Zachariewicz, the head of this faculty became Edgar Kovats, and then Oskar Sosnowski (from 1914) and Witold Minkiewicz (from 1920). The basic subject taught in the faculty was designing monumental buildings for public use. Besides, Witold Minkiewicz, Adam Mściwujewski, and Tadeusz Broniewski also worked in this faculty.

The Utilitarian Construction Faculty was under the guidance of the professor Władysław Derdacki. It was formed back in 1901 and its first director was Iwan Lewiński. Tadeusz Wrobel and Irena Obmińska-Wieczorkowa worked there.

In addition to the faculties the curriculum provided the two workshops:

- A sculpture workshop, which was formed back in 1873 and was led by Leonard Marconi and later by Edward Lepszy. At some point Antoni Popiel, Tadeusz Blotnicki, and Jan Nalborczyk all worked in this workshop.
- The photography workshop, which was formed in 1920. It was spearheaded for many years by Henryk Mikolasch, the grandson of Piotr Mikolasch, owner of the “Under Golden Star” pharmacy where the first gas lamp was developed.

The pre-war Polytechnic curriculum included ten faculties. The three others were created after the war:

- The Descriptive Geometry Faculty led by professor Kazimierz Bartel.
- The History of Polish Architecture Faculty, headed by Professor Marian Osiński.
- The Bridge Building Faculty where Ignacy Drexler and Tadeusz Wrobel worked.

Perhaps, one of the most prominent personalities of the interwar Polytechnic was Witold Minkiewicz (1880–1961) (Fig. 1). He was born in the family of exiled insurgents in the remote Russian Irkutsk. Initially, he studied at the Warsaw Polytechnic in the Engineering-Construction Department, then in 1901 he was transferred to the Lviv Polytechnic School, where among the lecturers of architecture were Tadeusz Obmiński and Iwan Lewiński. In 1908, Minkiewicz graduated and worked for one year as an assistant in the Utilitarian Construction Faculty. After some time, he completed his practicum in Lviv, St. Petersburg, and by the Lake Baikal. On January 1, 1920 he became an associate professor of the Department of Architecture of the Lviv Polytechnic, and a full professor on 1 June 1923. Due to his administrative and organizational skills Witold Minkiewicz’s career developed quite rapidly: in 1923–1924 and 1927–1928 he was the dean of the Department of Architecture, releasing a collection of student projects in 1925, with his introduction O projektowaniu (On designing) [21]. In 1930–1931 he became the rector of Lviv Polytechnic. Starting in 1909 Witold Minkiewicz was a member of the
Polytechnic Society in Lviv. In 1911–1913 he was elected to the board and to the committee that, as a part of the publishing body of the association (the periodical “Czasopismo Techniczne”) issued several publications devoted to architecture every year. The achievements in the field of architecture and construction required a special periodical, so in 1924 Professor Witold Minkiewicz initiated the publication of the scientific journal “Architektura i Budownictwo” (Architecture and Construction). The two professors of the Polytechnic, Jan Sas-Zubrzycki and Adolf Szyszko-Bohusz, edited the monthly devoted to architecture, construction and decorative art, called “The Architect”. On November 26, 1926 the Circle of Polish Architects (a subsidiary of the Polytechnic Society) elected Witold Minkiewicz to the permanent delegation of Polish Architects in Warsaw [22].

Moreover, Witold Minkiewicz also carried on an intense private practice. His most important works of that time were the Mechanical Department and the Machine Lab of Lviv Polytechnic, a pre-war design project which the architect reworked in 1921, giving the building features of reduced Classicism; residential buildings for a Pension Fund in the form of early Functionalism in Stryjska Street (1927), which was the first building where central heating was set in Lviv for an entire complex; the water towers in Pasichna Street and near the “Żelazna Woda” park, where reinforced concrete structures were used (1932–1934); and the Post Office in Borysław (1928–1930). The latest project fully reflected the creative credo of the architect, who sought to fulfil the new sanitary, construction and aesthetic demands. Witold Minkiewicz continued the practice, started by Julian Zachariewicz, which had the teacher-architects designing new buildings for the Polytechnic. The Electrical Laboratory and the Mechanical Department of Lviv Polytechnic, created in 1923, were to be the projects of such kind. Minkiewicz designed a grand ensemble of buildings, constructed in a synthesis of the historicizing New-renaissance style of the main building and a retrospective Neoclassicism of the Mechanical Department buildings and the new pavilions. The implementation of this plan would have provided the finishing touch to Leona Sapiehy Street (today Stepan Bandera Street), artistically enriching the functional and stylistic palette of the Lviv Polytechnic compound. The project was highly regarded internationally and won a silver medal at the World Exhibition in Paris in 1928. Unfortunately, the completed project was rejected by the Ministry of Education due to the lack of funds [23]. In a few years, on the same lot, the construction of a scientific and technical library was started and Tadeusz Obmiński (Fig. 2) worked on the design. After his death Witold Minkiewicz was commissioned to supervise the construction.
The significant educational and practical achievements of Tadeusz Obmiński happened to occur during the inter-war period. Besides, while heading the General Construction Faculty, he also created some iconic buildings. One of them was the new library in Jozef Nikorowicz Street (today Profesorska Street) which Tadeusz Obmiński developed after having won a competition in 1928. Construction started in 1929 and was completed only in 1934, as it was suspended due to the lack of funds. Tadeusz Obmiński developed the idea of a neoclassical resolution of the main facade by organic combining a traditional architecture with the latest architectural planning and functional resolution [24]. One of the biggest projects of Obmiński as well as of all the religious constructions of interwar Lviv became the Church of Our Lady of the Gate of Dawn in Łyczakowska Street that was designed on a competitive basis in the 1929–1930. The construction of this large-scale building and the new urban planning accent of Greater Lviv were completed by Wawrzyniec Dayczak. The Church of Our Lady of the Gate of Dawn is one of the most modern works by Tadeusz Obmiński where he organically synthesized the traditional three-dimensional structure of sacred building with the latest techniques of stylistic solutions: terseness, reduction of historic architectural forms and an actual lack of decor.

Ignacy Drexler (1878–1930) (fig. 3), renowned urban theorist of the interwar period, also worked within the walls of the Polytechnic. He was a graduate of the Polytechnic School, but studied civil and water engineering at the Department of Engineering from 1897–1901, receiving his degree in 1903. In 1913–1925 he lectured on urban planning and related disciplines at the Faculty of City Planning of the Polytechnic School newly established (1913), and first of its kind in Poland. In the autumn of 1925 he was appointed associate professor, and in 1928–1929 was the dean of the engineering department [25].

Fig. 3. Ignacy Drexler (1878–1930)

Marian Osiński (1883–1974) was a graduate of the Department of Architecture at the Polytechnic School and went on to study in Rome and Munich. At the Polytechnic he lectured on topics related to the history of architecture. After defending his thesis on the castle in Żolkiew in 1933, he became a professor and the director of the newly created Faculty of History of Polish Architecture. His work involved the development of the field of restoration in Poland.
An outstanding personality associated with the interwar Polytechnic was Jan Bagieński (1883–1967) (Fig. 4). He graduated from the Lviv Polytechnic School (1905–1910) and then worked in the construction company of Wojciech Dębiński from 1909 till 1914. After five years working in the Crimea he returned to Lviv in 1920. Just then he became a member of the Polytechnic Society and the Circle of Polish Architects, which operated within the Society. He was repeatedly elected to its board, and to the permanent delegation of Polish Architects in Warsaw [26]. In 1921 Jan Bagieński began teaching at the Lviv Polytechnic; by 1933 he had been given a title of a professor and led the course “Architectural Composition Based on Classical Forms”. This particular course was specifically chosen for him as he had a deep respect and understanding for the classics that he brought to his work. He explained his own approach to using the forms: “…deep ideological understanding of Classicism tells us that there is no reason to introduce a system of architectural orders where it has no role or place. A system of orders on fairly small walls, for example, on a row of the houses, will be inappropriate. Could anyone believe that pilasters or affixed columns are performing a serious task in such an instance? It is the formalism – walls can be divided by other means”. Jan Bagieński completed a large number of projects with the fundamental architectural compositions which were based on architectural orders. A typical example of such works is the Bielski Palace in 42, Mikołaj Kopernik Street, in Lviv reconstructed by him in 1921–1922. On the eve of World War II Jan Bagieński’s creativity was significantly affected by the rationalist orientation of architectural thought dominated at that time. The style of his works changed dramatically. The author, a consistent supporter of Classicism, assimilated the principles of a new architectural trend – Functionalism. An exacting professional culture helped Jan Bagieński quickly master the new architectural language and successfully work within its confines. One of his most successful attempts is a building in Żegiestow (in collaboration with Zbigniew Wardzała, 1932). The similar characteristics can be applied to the Social Care building (later the Bering Institute and now the main building of the Medical University) built in 1939 in 12 Zielona Street; its design won first prize in the competition held in Lviv in 1938 [27].

The list of the teaching staff of the Department of Architecture at the Lviv Polytechnic in the interwar period would be incomplete without mentioning Władysław Derdacki (1882–1851). He graduated from the
Polytechnic School in Lviv in 1907, but started teaching while still a student. He worked in the architectural bureau of Iwan Lewiński (1907–1910), and in 1911, together with Witold Minkiewicz, founded his own architectural firm. In June 1908 he was one of the founders of the Circle of Polish Architects in Lviv. Władysław Derdacki’s contribution during the interwar period to the Lviv School of Architecture was enormous: he not only lectured but was also active on the community and civic levels and published his works in professional journals. In 1937 he was appointed Minister of the Interior and was a member of the Commission for the Regional Planning of Lviv Region. In the same year the Committee for Developing the Polytechnic established a bureau for developing the Mechanical and Electrical Departments, and the Mechanical Research Station. After finalizing the architectural drawings, the construction of new buildings in Stryjska Street had been started but was interrupted by the war in 1939 [28].

Another active creative personality was Andrzej Frydecki (1902–1989) (Fig. 5). He studied at the Department of Architecture of the Lviv Polytechnic in 1922–1930 and got a diploma with two awards. This success allowed him to remain within the walls of his native university as an assistant, and later an adjunct. In 1934 he was elected a vice-president of Lviv SARP (Association of Polish Architects). He was an architect-innovator who actively contributed to the formation of the Lviv School of modernism.

Tadeusz Wrobel (1886–1874), the architect, urban planner and pedagogue also may be belonged to the galaxy of the unique personalities. He worked up until 1924 as an assistant at the Faculty of Utilitarian Construction of the Lviv Polytechnic, and later until 1928 as a designer. In 1928 together with Leopold Karasiński he opened his own architectural office in Lviv. In 1929–1930 he taught Construction Norms at the Architectural-Engineering Department. In 1939 he headed the Faculty of Bridge Building at the Lviv Polytechnic. Later, after World War II, he went to Wrocław, where he participated in the creation of Wrocław Polytechnic. After the founding the Department of Architecture and Construction, he became its first dean (1945–1947) and created the Urban Planning Faculty. In 1950 he became a president of the Wrocław branch of the Association of Polish Urbanists (Towarzystwo Urbanistów Polskich, TUP) [29].

As can be seen, lecturers of the Lviv Polytechnic were outstanding personalities, talented architects who practically formed the architectural image of interwar Lviv. They actively developed their creativity, assimilating cutting-edge architectural trends, which were based on the principles of Modernism. However, there was no active creative confrontation between supporters of historicism and proponents of avant-garde. Attention to classical details, the disintegration of forms, wealth of textures and colours were the echo of the heritage of the Austro-Hungarian period and a unique feature of Lviv modernism [30].

The activities of these architects created the necessary prerequisites for a successful curriculum and for the unique development of architecture in the city on the eve of World War II. Architectural studies were four years in duration; each year was divided into two semesters. Students attended classes for sixty hours a week; this practically required each student to be in the campus all day long. The quantity of academic hours was caused by introduction of the new subjects in the curriculum, among which, for example, were reinforced concrete construction, the history of Polish architecture and urban planning. It was becoming more and more difficult to include all necessary issues into the architectural design curriculum, since the typology of modern residential and public buildings was changing steadily.

Then, the idea to increase the training period to five years appeared and most people became convinced that separating the students into narrow specializations served no tangible purpose.

During the first year students studied basic subjects and gradually prepared themselves for design, which was the main subject of the department. The last three years were filled with architectural design curriculum which was divided among particular faculties. Every year the assignments became increasingly challenging and this was reflected in the names of the faculties which provided the classes. Thus, the Architecture I Faculty was teaching the fundamentals of architecture and spatial design during the two semesters, while linking projects with traditional regional features. Architecture II’s academic program consisted of three semesters in the third and fourth year of study. The lecturers placed the main
emphasis on issues related to the utilitarian value of objects in the spirit of the functionalism. The design class was extremely far-reaching: from residential buildings to a wide variety of facilities for public use, but of a relatively small scale – schools, small health facilities and industrial buildings. In turn, the Architecture III Faculty, in its two semesters program which was introduced in the fourth year of studying, offered projects connected with monumental buildings – cultural, administrative, and trade facilities as well [31].

In addition to their course design project, students of the Department of Architecture completed such subjects as descriptive geometry, higher mathematics, statics, preservation of architectural monuments, urban planning, metal and reinforced concrete design, cost estimation and construction production, construction statutes (legal framework for design and construction), construction materials, physics, photography, machine construction, economics, state and civil law, heating and ventilation, and hygiene and safety.

Among the forty-four subjects that were taught by the Department of Architecture in 1919–1939, twenty-nine were related to the arts. Among them were: history of architecture (general and Polish), drawing, graphics, perspective, the elements of Renaissance architecture etc. The arts approach was also used in educational training at other Departments, specifically at the Department of Land and Water Engineering and the General Department (from 1921–1933), where mathematics majors such as Physics-Chemistry and Drawing were located. A portion of arts courses were present in the curricula of these departments. Students might pass the second year of study if they obtained confirmation of having passed all the necessary exams. To be enrolled at the third year of study, it was necessary that students should pass a general exam (the half-diploma), and confirm that they completed all necessary subjects. One could enter the fourth and fifth year of study after confirming that the necessary exams and practical studies had been passed. The general examination assessed the student’s mastery of higher mathematics, descriptive geometry, physics, statics, and artistic perspective. The test was usually oral, so depending on the subjects it could include elements of writing and drafting. Exam results were entered into the exam protocol [32].

To obtain a diploma, one had to pass the graduation exam. The subjects in the graduation exam were construction, history of architecture, and architectural design; prerequisites for sitting the exam included passing subjects such as elements of measurement, engineering science, machines in construction equipment, building materials, urban planning, art history, building regulations, heating and ventilation, figure drawing, detail drawing and interior decoration. The graduation exam spanned seven days and consisted of invigilated part, public defence of the diploma project and an oral examination of items defined by the Graduation Examination Board. During the pre-war period such personalities as Władysław Derdacki, Jan Bagieński, Marian Osiński, Kazimierz Bartoszewicz, Wiesław Grzymalski, Witold Minkiewicz, and Władysław Sadlowski were the members of this Board [33].

The most important subject remained architectural design. Priceless examples of the topics of coursework subjects and their implementation were published in Zeszyty Architektoniczne (Architecture Notebooks) from the years 1926–1932 and 1930–1938. The presented projects allow us to become acquainted with the topics and to understand the pedagogical approach used in teaching course. Thus, as we can see the theatre project by Andrzej Frydecki (1926–1927) is characterized by an extremely rational approach: a clear planning structure, a symmetrical main axis, clearly defined vestibule and accessory spaces, and seating area (Fig. 6). The architectural image of the theatre is modern and conforms to the principles of Bauhaus: expressing the functional purpose of the building on its facade. The glazed main facade highlights the splendour of the main entrance, beautifully letting daylight into the vestibule and foyer. The cubic arrangement of the spectator area demonstrates the chambered construction and the enclosed structure of the space where performances take place. The huge expanse of the stage area dominates the building, clearly demonstrating its function (in the nineteenth century stages were considered to be unattractive and were disguised or decorated). Administrative offices and dressing rooms, which required lighting, were set along the three sides of the seating area with continuous ribbon glazing. The architecture of the theatre is not only rational, it is real, openly demonstrating the tenets of contemporary architectural ideology embodied in the truths of structure, function, and material. The Architectural project fully complies with Witold Minkiewicz’s vision, claimed in his inaugural speech:
“Invigorating drive of sincerity and purposefulness pushed the architects’ attempts on new tracks. Being out of pretentious accretions, the building was brought back to the forms of the simplest elements, the equivalents of “Cubism” in architecture” [34].

The same approach is demonstrated in other projects, for example, the pool designed by Andrzej Frydecki in 1928–1929 [35]. The expanse of the pool basin is clearly articulated. The space is covered with a modern construction incorporating reinforced concrete arches; sunlight reaches the interior between the arches, creating an interesting light effect. A two-storey administrative offices and a public cafeteria building along with a single storey locker rooms building are attached to the pool. The main entrance is accented with concise colonnade. The balanced asymmetrical composition demonstrates the true purpose of each part of the building.

A second pool was designed by Stanisław Knobloch in 1931–1932. This work demonstrates a fundamentally different architectural and artistic approach: the three-dimensional arrangement is based on the classical principles of symmetry and accents the main axis. A spacious hall separates the male and female locker rooms through which people enter the pool located in parallel to the line of the facade. The stairs to the second floor (where the administrative offices are located) are on the main axis. The facade is extremely laconic: its cubic composition is at once modern and classic, as it is constructed on the hierarchy of space and on submission to the integrity of the main axis. The latest architectural and planning solutions were presented in the design of the railway station developed by Dobrosław Czajka in the 1930–1931 [36]. The center of the planned composition is a spacious hall, around which the service facilities are grouped. The luggage department functionally separates the arrival area from the waiting one. Stairs lead to the underground passageways with exits onto the train platforms.

In 1929–1930 Karol Kocimski presented a draft of the Academy of Fine Arts [37]. The dynamic asymmetrical composition demonstrates a new vision of the building dedicated to art (Fig. 7). The general image of the Academy embodies the idea of Le Corbusier – a building as a machine for living. The idea of machine aesthetic permeates the composition and is implemented in the cylindrical mass of
the lecture hall, which is a vertical accent for the entire resolution in a dynamically curved wing with classrooms, resembling a conveyor belt. The general image is built on the contrast of the clear glass surfaces and remote arrays of reinforced concrete walls.

The course project of a small architect’s villa from 1930–1931 by Tadeusz Teodorowicz-Todorowski is a typical example of architectural Functionalism. The plan of the building is extremely rational that promotes the growing asymmetry and the massive solution. The combination of curved and cubic spaces, the contrast of solid walls and glass surfaces, and the multiple levels of the entire project demonstrate a beautiful mastery of the principles of architectural composition as well as the talent of the draftsman.

A very interesting project by Tadeusz Karasiński is the church designed in 1929–1930 [38]. Here one can notice the influence of the new Expressionism and the “glass pavilion” of Bruno Taut. The resolution in the plan is both traditional (which, after all, was required by the function) and ultramodern. This symmetric spatial structure built on a modular diagonal grid of squares, provides both the planning and volume of extraordinary emotional expression. Diagonal squares are present in the glazing, decoration of the portal, and in the paved floor. The student created a unique work of art completed in the spirit of “Neue Sachlichkeit”. The next issue of Zeszyt Architektoniczny which came out in 1938 showed the best projects created by students in the past eight years. It is immediately noticeable that they were complicated by the assignment and by the proposed architectural solutions. The Kazimierz Dziewoński’s theatre project of 1931–1932 was particularly interesting. The planning solution reflects a traditional approach to the vision of the theatre building, but the dynamically expressive facade completed with a continuous undulating wall is very impressive.

The vision of Frank-Lloyd Wright and his ideas of organic architecture are clearly reflected in the Yacht Club project, developed by Zygmunt Kowalczyk in 1932–1933 [39]. The building is harmoniously interpolated in the landscape, its architectural image built on the combination of stark surfaces of natural stone, glass and concrete.

The Fabian Kozik’s office building project developed in 1932–1933 is an example of searching for an image of a multi storey building, a “skyscraper”, which became increasingly relevant for European architecture in the 1930s [40]. The image of the building is extremely progressive for its time, much like the bold constructive resolution of its reinforced concrete frame. Among the projects are those for multi-storey commercial buildings, railway stations, hotels and dormitories. An interesting theme is the one of representative halls designed for conferences and large-scale presentations. Whereas the project by Andrzej Madejski created in 1935–1936 interprets the forms of the well-known Centennial Hall in Wrocław (1911–1913), and impresses with its courageous and creative constructive solution, the project by Zbigniew Chwalibog created in the same years can be considered as a monumental central composition based on the latest reinterpretation of the order system [41].

The published projects clearly demonstrate progressive views on the direction of architectural creativity which prevailed among the younger generation and were formed within the walls of the Polytechnic. Their analysis suggests that students had a deep awareness of the development of modern architectural trends and a desire to use them in their practice, while maintaining a connection with the local architectural heritage.

In the interwar period, the Union of Student Architects was very active. In particular, they continued identifying and inventorying the architectural landmarks. The results were published as Materiały do architektury polskiej (The Materials for Polish architecture) – Domy wołyńskie (Houses of Wołyń) in 1923, and Lewoczka – zdjęcia architektoniczne (Lewoczka – Architectural Photographs in 1929) with the support of editors of the journal “Życie Technickie”, that was founded by Zygmunt Sawczyński, a former student of the Architectural Department and member of the Union of Student Architects. An important focus of the Union remained organizing the exhibitions of students’ works, where they presented their coursework and creative work, as well as photographs (Fig. 8–9). A well-known event which caused amazement and great joy among the professional community was the victory of fourth year student Rudolf Indruch in the design competition. The subject was the monument to the Defenders of
Lviv in 1921. Later he worked as an assistant in the Drawing Faculty at the Lviv Polytechnic. Under the auspices of the Union, the annual student balls were organized at the city casino, and were extremely attractive and popular among the people of Lviv [42].

4. Conclusions

In this way, the Lviv School of architecture in the interwar period, despite economic difficulties and the relative isolation of the city, was one of the strongest in the Second Polish Republic, worthy the competing with the capital. An inextricable link between real design and studies, provided by the Department of Architecture, where the teachers were also the best practicing architects of Lviv, as well as social activism and patriotism of both teachers and students, expressed in extracurricular activities, were the important features of the interwar Lviv School of architecture. The specificity of its functioning was the strong link with tradition, the invisible presence in the training and creative activities of genius loci, which resulted in the formation of a specific form of Lviv Modernism that is recognizable among the modernist school of contemporary Poland. The tie to traditionalism did not exclude the constant pursuit of innovation that was instilled in the student designs, and then in actual projects, or modern ideas of architecture and urban planning, built on the ideology of rationality, expediency, and to some degree on the utopian dreams of building a renewed society with the help of new architecture.

Thanks to the continuous and active exchange of information between representatives of Modernism, the common characteristics of this style were gradually developed, that later were spread throughout the world as the “international style”. The library of the Department of Architecture subscribed to French and German professional journals and books. Regardless of the change in status that Lviv underwent, when compared to the Austrian period, and the changes in financing it received, the quality of education in the Lviv Polytechnic was not only maintained but it increased steadily as well. The Commission led by the Vice-Minister of Education from Moscow, that in November 1939 arrived to check the qualifications of the teaching staff at the Polytechnic, stated that travelling to the city they even didn’t dream to see the training of such high quality. All professors and associates were reviewed to assess their level of professional and scientific achievements, as well as the presence
of published articles 73. Perhaps, these impressive results led to the staff chosen during the Second Polish Republic remaining unchanged at the establishment re-named the Lviv Polytechnic Institute when Soviet authorities came to Lviv in September 1939, and through to the arrival of German troops in late June 1941.

During the German occupation, from mid-1942, Advanced Technical Courses were taught at the Polytechnic but students were not matriculated. After the geopolitical map of Europe was re-drawn at the end of World War II, the fate of many architects, whose life and professional creations were associated with the Lviv Polytechnic, was significantly changed. Most of them left for Poland (Cracow, Wroclaw, Gliwice, Gdansk and other cities), where they worked professionally for life. In connection with the strong post-war destruction of Europe, Modernism, by the typification of its design and its international entity, continued to be extremely popular, as its principles allowed for rapidly increasing the pace of construction, thereby reviving destroyed cities in a short time. It again became the prominent style of government buildings and houses, symbolizing modernity and democracy, an alternative to the architecture of Nazi Germany and Stalinist socialist realism. The teachers of the Department of Architecture, who had very high professional level, held management positions in various architectural educational institutions and in government agencies in various Polish cities, thus directly influencing the formation of post-war architectural education and practice.

References

АРХІТЕКТУРНА ОСВІТА У ЛЬВІВСЬКІЙ ПОЛІТЕХНІЦІ МІЖВОЄННОГО ПЕРІОДУ

Анотація. У статті розглянуто історію розвитку архітектурної освіти у Львівській політехніці у міжвоєнний період. Визначено основні напрямки розвитку архітектурної освіти цього часу, проаналізовано діяльність найбільш видатних представників львівської архітектурної школи.

Ключові слова: Львівська політехніка, архітектурний факультет, архітектор, професор.