Syllabus

Department “Architectural constructions and restoration of the monuments”

Discipline "RESTORATION AND CONSERVATION"

1. Information on discipline

Code ________ İPF-B25-b ____________

Year of education IV semester 6

Faculty Architectural

Group_______________________________

Load: lectures 45 hours, seminars 30 hours, course project laboratorial _____ hours. Total 75 hours.

Credits: 9

Assessment type: (Essay/ report/ test/ midterm exam/ project etc)

Auditorium: № ________

Time:13.40

2. Information on lecturer:

Name and title: Hajiyeva S.Kh., ScD in architecture, professor

Address of the department: AzUAC, III building, 2 floor

Consultation hours: _______________________________

E-mail: sabiks13@yahoo.com

Department: 5387409
3. Necessary books and manuals:

1. **Cezare Brandi.** Theory of restoration/ Nardini editore, 2005
2. **Convention concerning the Protection** of the World Cultural and Natural Heritage 1972, Paris, 16 November 1972
11. **Мəмəдова Z.G.** Memarlıq abidələrinin bərpasının əsasları, Bakı, 2007

4. Description and the goals of the discipline:

**PURPOSE OF THE COURSE** is disclosure of scientific and theoretical foundations of restoration and conservation, based on the idea of restoring the architectural heritage. The course consists of one section, which consistently reveals the formation of the restoration science, the development of the restoration of the existing theories, including the theories of stylistic and archaeological restoration and modern methods and laws in the conservation of the architectural heritage. We also consider aspects of the formation of the restoration science in Azerbaijan at different stages of history. In addition, we study in detail the current state of the engineering conservation, a complex of negative factors affecting the architectural monuments, diagnosis of the deformations in the monuments and the main methods of its implementation, and other problems.

**OBJECTIVES OF THE COURSE.** The main objective of the course is to familiarize students with the practical and theoretical foundations of scientific restoration of architectural monuments of historical and artistic value.

**ROLE OF COURSE IN THE TRAINING OF ARCHITECTS- RESTORERS.** This course is one of the core subjects in the training of students for architectural activities. Students have to get an idea of the role of monuments in modern life, in worldview and society. The course is also subjected to link the widespread perception of the restoration, scientific and theoretical basis for its implementation. Theoretical bases are considered as the result of a process of development of human culture; since culture is constantly evolving that process does not stop its development. Therefore, the main goal of any restoration is the maximum extension of the life of the monument of past eras and passing it on to future generations.

**SECTION OF THE COURSE.** The course consists of one section, which consists of lectures (30 hours) and practical lessons that include exercises (60 hours) and additional classes (20 hours). During the exercises the student must fulfill during the semester course project
"Restoration and conservation of the monument of architecture". The project's main goal to instill the research skills on monument of architecture, proper measurement and diagnosis of causes of the destruction of monuments of architecture, determine the causes of the destruction and deformation of the monument and correct liquidation; determining a wide range of analogies and use of this information for restoration of the monument. The student must acquire practical skills in the field of natural and archival research of the monument, the collection of historical information about the monument, making a competent project of the restoration or conservation of the monument and its adaptation for modern use.

During additional classes a student must fulfill a series of drawings and photographic images showing the architectural details in the monuments of Azerbaijan. The exercise of these drawings aims to show to students the basic methods of architectural details’ construction, as well as improve the graphics capabilities of students.

5. The planned schedule of the subject:

5.1. Topics and summary of lectures

<table>
<thead>
<tr>
<th>Weeks</th>
<th>Topics and summary of lectures</th>
<th>Hours</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>LECTURE 1. APPEARANCE OF THE INTEREST TO MONUMENTS OF ANTIQUITY. RESTORATION OF EARLY XIX CENTURY. The attitude of society to the historical heritage as a determining factor, the recognition of humanism and ancient culture, the study of the monuments of ancient art and importance of classicism in their conservation, the importance of creativity of I.Vinkelman; emergence of archeology as a science, restoration of ancient Roman monuments (R.Stern and J. Valadier) and their distinctive features (preference of authentication, difference in materials, signation, simplification of new parts in comparison with the original, etc.).</td>
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<td>LECTURE 2. APPEARANCE OF THE INTEREST TO MEDIEVAL MONUMENTS. RESTORATION OF EARLY XIX CENTURY. Romanticism and appeared with him an understanding of the importance of historical and artistic heritage, the French Revolution and the emergence of the state system of protection of monuments, medieval architectural monuments as the main object of restoration work, the emergence of restoration theories (John Ruskin, L.Vite, P.Merime, etc.)</td>
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<td>3</td>
<td>LECTURE 3. &quot;STYLISTIC RESTORATION&quot; OF THE XIX CENTURY. Practical activities of E.E.Violle-le-Duc and the principles of stylistic restoration and tendency to give complete form to a monument, extensive use of analogies and completely change of the original look, and the extent of the stylistic restorations in Europe. The generality of the concept of assessing the importance of the restoration of monuments in post-Petrine Russia and in Western countries. Particular attitude to the restoration of the monuments of the Moscow Kremlin in the XVIII century and after the attack of Napoleon; stylistic restoration in the middle of the XIX century, new requirements for restoration activities in the late XIX- early XX centuries; restorations in 1918-1920 –ies.</td>
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<td>4</td>
<td>LECTURE 4. &quot;ARCHAEOLOGICAL RESTORATION&quot; AND RESTORATION THEORIES IN THE LATE XIX - EARLY XX CENTURY Criticism of stylistic restoration, historical and cultural conditions of a new attitude to the restoration of architectural monuments, a new theory of restoration, a new classification of monuments and attempts to create a</td>
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new kind of restorations (K. Boyto, A. Rigl, J. Giovannoni); restoration principles based on the ratio of the monument as, first of all, the historical source; Italian Charter for restoration and decisions of Athens international Charter of restorers.

**LECTURE 5. RESTORATION AFTER THE SECOND WORLD WAR**

The massive destruction of architectural monuments and the problem of possibility to restore the completely lost monuments, the scale of restoration in completely lost monuments (Leningrad, Warsaw); the threat of a return to the methods of stylistic restoration during expansion of specific activities related to the elimination of the devastating effects of war.

**LECTURE 6. RESTORATION IN AZERBAIJAN**


**LECTURE 7. ADAPTATION OF ARCHITECTURAL MONUMENTS FOR MODERN USE. IMPROVEMENT OF MONUMENTS’ SITES**

The principle of function selection during adaptation - the character of the monument, planning structure of architecture monuments, valuable interiors; as well as the choice of general planning solutions based on functional requirements, the connection between the restoration and adaptation, the use of new elements, equipment, etc. Features of design of engineering services in architectural monuments. Improvement of the territory of a landmark as one of the main tasks of the architect - restorer in adapting the monument. "Protected" areas, the purpose of their creation, the size and the requirements for it. Delimitation of the buffer zone. Examples of implemented projects on improvement landmarks: Kish temple in Shaki, architectural ensembles in Samarkand and Bukhara, Uzbekistan (Registan complex, the mausoleum of the Samanids, etc.). Making the right synthesis between modern environments and architectural monuments in the course of work on the landscaping.

**LECTURE 8. INTERNATIONAL AND NATIONAL LEGISLATION AND INTERNATIONAL DOCUMENTS IN THE FIELD OF ARCHITECTURAL HERITAGE CONSERVATION**


**LECTURE 9. COMPLEX OF NEGATIVE FACTORS AFFECTING THE ARCHITECTURAL MONUMENT**

The impact on the dynamics of the construction and foundation construction. Industrial seismic, which is the cause of soil deformation under the effect of vibration, the destruction of underground structures, the loss of structural strength, creating of the stresses in structures of architectural structures, etc. The negative impact of the area relief and the location of the monument near the underground water sources on architectural monuments, the acceleration of subsidence and destruction.
due to the impact of transport. The reasons of landslides, destruction of monuments as a result of soil moisture, destructive changes occurring in the monuments as result of construction of new facilities in their immediate vicinity.

**LECTURE 10.**
**TYPES OF DEFORMATIONS IN ARCHITECTURAL MONUMENTS. DETERMINATION OF THE DEFORMATIONS.**
**DIAGNOSIS OF EXTERNAL AND INTERNAL SURFACES**

Types of deformations in the architectural monuments: the deformation in the "base"- "monument" system, external factors, the instability of soils, ground deformation associated with disorders in the construction of the foundation due to subsidence, the weakness of the foundation structures, earth pressure on retaining walls, excessive load on the overlap. Use of construction materials with a binder consisting of a metal frame. Secondary reasons of building structure weakening- hydrogeological conditions, the violation of the temperature and humidity conditions, the construction of the monument near the new building with a deep foundation, violation of building technology in the construction of the foundations of the building, changing the initial workload of the building, violation of overlap, etc. Reasons of different types of cracks in the monuments- vertical, horizontal, bending, mixed, and others. Determination of destruction in the structure or of its parts under the influence of hydrostatic and other factors such as landslides, sagging, compression, shrinkage, deflection or movement of underground or aboveground components. Activity, caused in deformation of the monument (short-and long-term effects). Mechanical and physical effects and other factors.

Characterization of the state of external surfaces of an architectural monument (facades and coverings). The research, analysis and diagnosis of building’s condition as a main stage in production of restoration and conservation work to strengthen it. Proper preparation of the constructive, architectural and engineering drawings and technical and scientific tasks. Characteristics of the current state of the internal surfaces of the architectural monument (interior walls, floor and ceiling). Types of damage in the building materials, architectural decoration, structural elements of an architectural monument. Examples of anti-moisture, protection walls yielding into the soil, creating a drain on the outside perimeter of the building.

**LECTURE 11.**
**STRAIN OF THE THRUST SYSTEMS**

Characteristics of the arch-vaulted systems of the monument bearing the function of support and depending directly on the state of the vertical structure of the building. The reasons for their deformation and fracture: vertical movement of the structure (walls, piers, columns, etc.), moving parts of the foundation as a result of subsidence of the structural supporting elements, the destruction of the binding frame while moving the heel of the arches in the vertical direction.

**LECTURE 12.**
**METHODS OF ENGINEERING STRENGTHENING OF THE MONUMENTS OF ARCHITECTURE UNDER DESTRUCTION**

Principles for the strengthening of the deformed masonry walls, methods of strengthening of unstable structures, hidden and open constructive strengthening of architectural monuments. The importance of special engineering and structural studies of individual elements and parts of architectural monuments, building and finishing materials, soil base, etc. Report (Final result) including all the collected by specialists material and other technical documents.
5.2. Topics of seminars (exercises) and their summary

The main objective of practical training is to teach how to conduct measurement and investigation of the landmark, preparation of drawings of the initial stages of restoration and conservation work. All this is reflected in course project "**Restoration or conservation of architectural monument**", which is performed in the form of explanatory notes and the graphics part (60 hours).

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<thead>
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<tr>
<td>1</td>
<td><strong>Theme № 1</strong> Croquis with measures, details, connection of the building to the site</td>
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<tr>
<td>1-3</td>
<td><strong>Theme № 2</strong> Photofixation: facades, interiors, details, description of the problematic zones in the monument</td>
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<td>4</td>
<td><strong>Theme № 3</strong> Measurement drawings- facades and walls or sections, plans, details, plafond with detailed measures</td>
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<tr>
<td>5-7</td>
<td><strong>Theme № 4</strong> Diagnostics of the facades and interiors</td>
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<tr>
<td>8-9</td>
<td><strong>Theme № 5</strong> Analogical monuments</td>
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<td>10</td>
<td><strong>Theme № 6</strong> Restoration drawings- facades and walls or sections, plans, details, plafond with detailed measures</td>
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<tr>
<td>11-13</td>
<td><strong>Theme № 7</strong> Drawings on adaptation of the monuments to the new use- sketches of facades and interiors, site improvement etc.</td>
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5.4. Topics of course projects and their summary

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<tr>
<td>1.</td>
<td>Drawing on the topic: <strong>Principles of the strengthening the deformed stony masonry of the wall</strong></td>
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<td>2.</td>
<td>Drawing on the topic: <strong>Strengthening of the unstable constructions</strong></td>
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<td>3.</td>
<td>Drawing on the topic: <strong>Strengthening of the foundation by Fondedille method</strong></td>
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<td>4.</td>
<td>Drawing on the topic: <strong>Strengthening of the foundation using concrete ring</strong></td>
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<td>5.</td>
<td>Drawing on the topic: <strong>Strengthening of the building using counter forth</strong></td>
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<td>6.</td>
<td>Drawing on the topic: <strong>Traditional method used in the case of sagging of the vaults</strong></td>
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<td>7.</td>
<td>Drawing on the topic: <strong>Straightening of the compact hard volumes – obelisks, pylons, stellas etc.</strong></td>
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<td>8.</td>
<td>Drawing on the topic: <strong>“Open» strengthening of the monuments</strong></td>
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<td>9.</td>
<td>Drawing on the topic: <strong>Strengthening of the arches</strong></td>
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<td>10.</td>
<td>Drawing on the topic: <strong>Strengthening of the domes</strong></td>
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### 5.5. Topics of additional classes and their summary

### 6. Requirements for attendance.

The maximum number of points for attendance is 10 points. In the case of students’ attending all classes during the semester, he gets 10 points. Every 10% of the total number of missed classes result in the loss of 1 point. In the case of exceeding the allowable limit of missed classes the student is not allowed to attend the exam. Special desicion should be decided on his further fate.

### 7. Assessment of student knowledge

The maximum number of points for knowledge is 100. 50 of them student gaining during the semester, 50 - on the exam. Scored during the semester 50 points included: 10 points per visiting, 10 points for additional work, 30 points for the results of laboratory classes or seminars. If the discipline has course work (project), then 20 points are awarded for the results of seminar or laboratory studies and 10 - for the implementation of the course work (project).

During the examination student must score at least 17 points. In the case of more than 30% of missed classes, the student is not allowed to exam.
According to the European Credit System for the results of points accumulated for the semester, the student is evaluated as follows:

- Less than 51 points – «non satisfactory» – F
- 51 - 60 points – «acceptably» – E
- 61 - 70 points – “satisfactory” – D
- 71 - 80 points – «good» – C
- 81 - 90 points – “very good” – B
- 91 - 100 points – “best” – A

8. Violation of the rules of conduct. In case of violation by the student the code of conduct provided by the University it can be applied activities under the Regulations.

9. Requirements for the level of the course content familiarization:

The course introduces students to the basic works on architectural monuments, restoration and conservation of the following areas:

- General understanding of the restoration theories existing at the different historical stages of social development, including the theory of stylistic and archaeological restoration;
- General understanding of the most important results of the restoration activities taking place in the XVIII - XX centuries in Western Europe, Russia and in the twentieth century in Azerbaijan; characteristic of the restoration tradition in Azerbaijan architecture at different stages of development;
- The adaptation of monuments to modern use, the study of local and international experience in this field;
- Study of the documents and the International Republican legislation on the conservation of the architectural heritage;
- A study of the complex of negative factors affecting the architectural monuments;
- Diagnosing the deformation on architectural monuments;
- Basic methods of technical diagnostics of the causes deformations in the architectural monuments.

10. Determining the views of students on the subject:

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Lecturer: ________________________ ( )

“_____”_______________20__ .